





## THE SHARE LIST WILL CLOSE ON THE 1ST JULY.

The TIMES, of June 1, 1882, says:—

'THE WEST AFRICAN GOLD FIELDS.—At last night's meeting of the Society of Arts, Captain R. F. Burton read a paper entitled 'Gold on the Gold Coast.' The Author, after some references to the joint exploration conducted by himself and Captain Cameron, R.N., quoted an extract from his own 'Wanderings in South Africa,' published in 1863, containing a prediction that 'Africa would one day equal half-a-dozen Californias.' In that work he had also shown that Western Africa was the first field to supply the precious metal to Europe. He then detailed, in graphic terms, the route through the auriferous districts followed by himself and his companion after their landing, on January 25 of the present year, at Axim, the chief outpost of the future gold business. He went out doubting, with others, the possibility of making the rich mines and diggings pay. He returned thoroughly satisfied. He showed compendiously how he reached the conclusion that two out of the four obstacles deemed most fatal to success—Ashantee obstruction, the expense of transporting machinery and working skilled labour in a wild country, lack of hands, and the climate—were mere bugbears, while the other two could be easily surmounted. In his recapitulation, Captain Burton said the good news they brought home was the prodigious wealth of the land. He knew nothing to equal it in California or in Brazil. Gold dust was panned by native women from the sands of the seashore. Gold spangles glittered after showers in the streets of Axim. Gold was yielded by the lump of yellow 'swish' rivetting the wattle walls of hut and house. Their washings ranged from ½ oz. to 4 ozs. a ton. There, then, was the gold, and it would be our fault only if it stayed there. During the last century this section of the West African coast yearly exported to Europe between three millions and three and a-half millions of sterling gold in the shape of dust, nuggets, and bars. The abolition of slavery, and the manumission of 'pawns' brought the average down to £126,000 during the last decade. But we have in our hands the best of slaves—the tireless machine, the steam navy, and the quartz stamp. 'Long Tom' and 'Broad Tom' would do single-handed in a day the work of a whole gang of negroes. Moreover, England wanted gold. A few years ago her annual supply was £25,000,000, now it was but £18,000,000. He saw no difficulty in again raising the export from West Africa to the highest figure it showed during the last century; and he knew no land better able to supply the amount wanted by England to preserve the balance of the precious metals than this Old-New California, our own neglected El Dorado—the Gold Coast. Captain Burton having finished the reading of his paper, Sir Rutherford Alcock, K.C.B., who presided, opened the debate, in which Mr. Johns, Mr. Thomas Cornish, Mr. Walker, Mr. Oliver Pegler, Mr. Liggins, Dr. Hewan, Mr. Wast, Dr. Hyde Clarke, and others, con-

firmed, for the most part from personal knowledge of the Gold Coast, the testimony of the two travellers.

The following is an Extract from the Lecture by Captain Burton, delivered before the Society of Arts on May 31, 1882:—

"We spent a day prospecting the Ingotrow concession on the right bank. The soil is immensely rich, and the people have shown by extensive washing the proper way to work its wealth."

Extract from the Lecture of Captain Cameron, R.N., before the Society of Arts on May 23, 1882:—

"Returning to Axim we went up the Ancobra River, and visited the Ingotrow Mines. These mines are enormously rich."

The BULLIONIST of June 3, 1882, says:—

"The testimony of Captain Burton and Captain Cameron to the existence of large gold supplies in West Africa has excited very great, general, and widespread interest. Last week we gave an account of the very encouraging results of which Captain Cameron spoke when addressing the Society of Arts; and on Wednesday night last Captain Burton was able to deliver the address which was due a week previously. 'Gold on the Gold Coast' was the taking subject; and if there is anything in the experiences of the two travellers—if we are to take their testimony (as we surely may) as trustworthy—then there is on the Gold Coast a rich and almost inexhaustible source of supply of the precious metal. Captain Burton, indeed, speaks in terms that suggest the possibility of exaggeration; and yet there is no reason to doubt the truth of his report. To begin with, Western Africa was the earliest source of gold supply for Europe; and in resuming the search there is only resumption of the old enterprise. But it is resumed under conditions that must assure great results. If we are to accept Captain Burton's assurance, there is a vast new field of enterprise and industry opened up for European skill and daring. The 'prodigious wealth of the land' is the report which is flashed upon Englishmen at home by the explorers who, a few months ago, were sent forth to ascertain the truth regarding the capabilities and actual resources of West Africa. There were eager anticipations that we should thus have confirmation of what had been long expected. Captain Burton himself, though he went forth with large ideas of what he was likely to find, has come back with his hopes and ideas yet further enlarged. He sees in this 'Old-New California' of England at the Gold Coast a source of supply that will give us all the gold we need, and will realise the highest expectations anywhere at any time cherished as to what the future will bring forth. From the Society of Arts' meetings a stimulus has been given to the creation of new companies to explore West Africa, and to make the Gold Coast the new El Dorado for Englishmen."

## The African Gold Coast Syndicate

(LIMITED).  
(INGOTROW CONCESSION).

To be Incorporated under the Companies Acts, 1867 to 1881.

CAPITAL £45,000, IN 4500 SHARES OF £10 EACH.

PAYABLE AS FOLLOWS:—£5 on Allotment of Shares, £5 three months after Allotment.

### DIRECTORS.

Captain RICHARD F. BURTON, F.R.G.S., &c.

Commander V. LOVETT CAMERON, R.N., C.B., &c.

RICHARD REVETT, Esq., Southampton, of the Royal Mail Steamship Company.

T. G. H. GLYNN, Esq., Director, Great Wheal Worthy Mines.

SOLICITOR—FREDERICK PARISH, Esq., 2, Great Winchester Street Buildings, E.C.

AUDITORS—Messrs. FOSTER, HIGHT, and Co., Chartered Accountants.

SECRETARY—F. GRANT, Esq.

OFFICES—3, COPTHALL BUILDINGS, E.C.

### PROSPECTUS.

This syndicate is formed to purchase the concession for minerals on the Ingotrow property, near Axim, on the West Coast of Africa, comprised in a certain lease, dated June 8, 1881, from Kwacoe Appoh, the chief of the district, with all the powers possessed by the vendor for working the same, and all the interest in the said property granted by the above lease, to sell sub-concessions from time to time as may be deemed advisable, or to form companies for the purpose of working same for gold mining and other purposes.

It is not proposed that this syndicate shall work any portion of the property. The area of the property is much larger than that of any existing Gold Coast mining company, quite as auriferous probably as the best of them, and, what is of great importance, is considerably nearer the coast than any of the existing companies property. The syndicate, therefore, purpose dividing the property into sections and disposing of same.

The Ingotrow property is about 3000 fathoms square, or a total area of about nine geographical square miles.

The concession is situated at about seven or eight miles from the Port of Axim, in the Gold Coast Colony, West Africa. The Port of Axim, it is well known, is the point of debarkation for all the Gold Coast mines, and is less than four miles from the River Ancobra, which is navigable by large boats and steam launches for a distance of about 60 miles from its mouth. At nine miles distance from its mouth it receives the outlet of the Namwa, which flows through the property. The whole distance to be covered in transporting the machinery, &c., to the centre of the Ingotrow property does not exceed 16 miles, of which about nine miles is water carriage, thus the position of the property affords exceptional facilities for transport to and from the sea.

The favourable reports of Capt. Burton and Commander Cameron, R.N., are attracting a large amount of public attention to the wonderful richness in gold of these districts (the Ingotrow property is especially pointed out as immensely rich by both these celebrated explorers), and it is anticipated that there will be a great demand for this description of investment in the early future.

The following assays of surface quartz of the Ingotrow property have been made:—

Assay Offices and Ore Floor, Hatton-garden,  
London, E.C., Oct. 21, 1881.

#### CERTIFICATE OF ASSAY.

We have examined the samples of quartz marked as under, and find the following to be the result:—

	Produce of Gold.	Produce of Silver.
Ingotrow No. 1, Native Pit .....	2-600 ozs. ....	0-300 ozs. ....
" " 2, New Reef .....	12 grains .....	traces.
Per ton of 20 cwt. of quartz.		

(Signed) JOHNSON, MATTHEY, and Co.

The pits and shafts of the natives exist in great numbers, and are spread over a large area of ground, proving that these native workings have been very productive, but have not been carried to any considerable depth.

It is well known that the natives, being ignorant of the commonest mechanical appliances for drainage, working shafts, or timbering (and also for superstitious reasons), work a very little distance below the surface.

It will be seen by the reports of R. B. N. Walker, Esq., F.R.G.S., and Henry Hoskings, Esq., who have examined the locality leased, that the underlying reefs are rich in gold, the soil being impregnated with the precious metals.

The success which is attending the mines started in this colony is well known to investors in African gold mining property. The Gold Coast Gold Mining Company, the Effuente Gold Mining Company, and more recently the Taquah Gold Mining Company, are worthy of notice, notably the Effuente Mine, which has sent its first shipment of amalgam, to be followed, it is anticipated, by regular monthly shipments.

It will be seen that there are immense advantages of position and proximity to the coast and port of debarkation possessed by this property over districts already opened up; this, coupled with the fact of the richness of the soil in gold, will undoubtedly lead to the successful operation of the mining companies which open up the lodes.

The facts above stated are no doubt sufficient to warrant the anticipation of extraordinary success.

The price fixed for the lease is only £40,000, out of which the vendor takes in shares of the syndicate £22,500, and in cash £17,500, the remaining capital, £5000, being employed as working capital for the purpose of floating the proposed companies.

Further directors will be elected at a general meeting of the subscribers, to be held for that purpose within two months of the date of allotment, and the services of Mr. R. B. N. Walker, F.R.G.S., have been secured as consulting director.

The only contract entered into is an agreement dated the 5th day of April, 1882, and is made between John Williamson Reader, of the one part, and Frederick Grant of the other part.

Prospectuses and Forms of Application may be obtained at the registered office of the company, or of the bankers, solicitors, or auditors of the syndicate.

### Meetings of Public Companies.

#### PLACERVILLE GOLD QUARTZ COMPANY.

The fifth general meeting of shareholders was held at the offices of the company, 6, Queen-street-place, on Thursday,

Mr. J. IRVING COURTENAY in the chair.

Mr. ROBERT TAYLOR (the secretary) read the notice calling the meeting. The report and accounts were taken as read.

The CHAIRMAN, in moving the adoption of the report and accounts, said: I do not attend to address you at the same length as on former occasions, because one of the representatives of the London managers of the company—I mean Mr. John Taylor—is present to-day, and will take the opportunity of calling attention to certain interesting features connected with the property. We have continued steadily to explore the mine in depth, and the main shaft is now sunk 700 ft. from surface. You know the drawback we have had to contend with for the last two years in the shape of the horse of state which unexpectedly made its appearance between the 400 and 500 ft. levels. I think we have at last got through the worst of this disturbance of the vein, though we are not yet quite free from its evil effects. There have been rapid changes in the condition of the lode; for a time very rich quartz is met with, and then the ore suddenly becomes mixed. To separate it is almost impossible, and all of it contains some gold. The more recent advice, however, points to a genuine change in the character of the vein in the 700 ft. level. There is a well-defined foot wall as smooth as glass, and this continues up into the stopes so far as they have been opened up. The winze will be pushed on down for the 8th level, and the 7th level will be driven ahead in a northerly direction. The latest news from the mine is contained in the telegram of the 9th inst., from the company's general manager in California, Mr. Thomas Price, 600 tons having been crushed in May, yielding \$3500. This is an increase in the yield of gold per ton over previous returns, and the ore is reported to be still improving in the stopes and 700 ft. level, we may look for an increased production of gold. The estimated cost of milling and mining the ore is from \$4 to \$5 per ton; this is apart from any exploratory work. The west vein continues to furnish a considerable quantity of quartz; the developments at this point will be watched with much interest. Some samples of the quartz from this vein are before you, they show much visible gold. I should also add that the ore in the bottom level is showing considerably more sulphurets, and of a higher grade, and the gold is also much coarser. Since the last meeting the directors, acting on the advice of Mr. Price, have made what they believe to be a valuable addition to the company's property by the purchase of several mines immediately adjacent to the Placerville Mine, and Rose, Oregon, Chester, and Ida Mines. The Rose and Oregon Mines, as you will have gathered from their record, sent you some time since, have produced bullion, and may be deemed to be well proved. These mines can be economically opened and worked by means of cross-cuts from the Placerville Mine, and we thus gain the control of nearly the whole hill on which our works are situated. The company now owns upwards of 7000 ft. on the course of the vein. In the way of machinery, we have the Placerville 20-stamp mill, fitted with all the modern appliances, and the importance of the ore from the mine to the mill; self-feeders, &c.—in short, everything that is requisite for economical handling of the ore, and the Oregon mill in addition, whenever more power is wanted. I think, then, the consolidation of mines now possessed by this company may fairly be considered to form one of the most extensive and complete gold quartz properties in California. The 10 per cent. debentures are, therefore, amply secured, and, as they differ from most debentures in being at any time exchangeable, at the option of the holders, for shares of the company at par, I expect to see the unplaced balance soon absorbed. I shall be glad to answer any question and to give any further information in my power. I should add that we have a gentleman present, Captain Sparks, who has just returned from a voyage round the world. When in California he visited the Placerville Mine, though in no way interested in it, and has kindly consented to tell us what he saw there.

Mr. WILSON seconded the motion, which was put and carried without discussion.

On the motion of the CHAIRMAN, seconded by Mr. DOUGLAS NEAME, [Mr. Reginald Bird was re-elected a director.

The CHAIRMAN moved that Mr. James E. Bowe be re-elected a director, and said it was a great advantage to have on the board a gentleman who, like Mr. Bowe, visited the property from time to time.—Mr. STEEL seconded the motion, and said that Mr. Bowe had rendered very valuable assistance to the company. The motion was carried.

On the motion of Mr. DOUGLAS NEAME, seconded by a SHAREHOLDER, the auditor, Mr. James Meston, was re-appointed.

The CHAIRMAN said that the directors were very much indebted to Mr. John Taylor for the great assistance he had rendered at the board meetings, and he was sure the shareholders would be glad to hear a few words from that gentleman. (Hear, hear.)

Mr. JOHN TAYLOR said he should find it difficult to touch upon any absolutely fresh matter. The shareholders had received the reports of Mr. Price as they come to hand, and the Chairman had entered very fully into the entire subject, and mentioned all matters of real interest and importance which should be brought before the shareholders. However, there were one or two points upon which he was glad to have an opportunity of saying a few words. One was with respect to this "horse" of ground. Perhaps the shareholders might not all understand what was meant by this term. In this instance it simply meant that the vein, without being weakened or diminished in size was filled at that point between the walls with black slate instead of auriferous quartz. Mr. Price stated a long since in November, 1880, that he anticipated this black slate-rock would disappear at the 700 ft. level, if not at the 600. He argued that this would be the case from what he had seen in the neighbouring mines, and if there had not been a complete verification of Mr. Price's prediction, yet the directors were satisfied that what he anticipated would be the case had really and substantially come about. They directors had not been informed that the "horse" had disappeared, but the advice on June 9 stated that the quartz at the end of the 700 ft. level and in the hope at that depth was the best he had seen in the mine. (Hear, hear.) He need not impress upon them the importance of the ore at the deepest point of the mine. He had something to say with respect to another point. A long distance from the main workings (about 1400 or 1500 ft.) some years ago what was looked upon as likely to be an important discovery was made, and there was reason to expect that for a great distance laterally that vein would be productive. Then there was the west vein to speak of, which brought them to an important point. At the time the debentures were issued \$6 per ton was spoken of as the probable cost of mining and milling; but Mr. Price, in writing of the west vein, said he thought the cost would be covered at \$2½. It was a low price, but probably it was not too small an amount, because he believed that with the appliances at the property it was reasonable to expect that such would be the case with stuff of this nature, which seemed easy to treat. (Hear, hear.) The mines were fully provided with machinery for all purposes, and the water power was of very great value. Water power was possessed by this company to an extent seldom met with in quartz mining. The name of Mr. Thomas Price, of San Francisco, had been familiar to him from many years. He (Mr. Taylor) did not know Mr. Price personally, but they had heard much about him, and during the past few months he had seen so much correspondence with him that he was sure the shareholders might consider they were in excellent hands. He looked upon Mr. Price as one who not only did the work he had to do to the extent which he considered his duty, but worked heart and soul for the interests of the company. (Hear, hear.) As regarded Mr. Jones, Capt. Sparks reported that he was a hard-working man, who came to the company with excellent testimonials and great experience, and from the communications which were sent over it was evident that he understood his work, and was careful and cautious in his statements. The shareholders were to be congratulated upon the acquisition of the large amount of property, which practically surrounded the original site, at a very moderate price, and he had no doubt the thanks of the directors had been conveyed to the gentlemen who had conducted the negotiations for the purchase of the property. There was every reason to look with great hope to the future prospects of the concern, which was now in a very satisfactory condition. With regard to placing some more, or all the debentures, this was a matter of great importance to the company, and he trusted the shareholders already interested would come forward, and he also thought that the directors should make a strong effort to induce others not interested at present to take some share in a property which one might safely recommend to one's friends, for the security appeared to be good. Every report from the mine increased their opinion of the concern, and further development showed how large an affair it was. The debentures only amounted to 25,000l., which for a large property of this kind ought to be as good a security as a mining security ever could be, and the advantage mentioned by the Chairman of the debenture holders having the option of exchanging their debentures for shares ought not to be forgotten. (Cheers.) Some little time would be required for the future development of the mine, but the work was being carried on as rapidly as Mr. Price considered himself justified in doing, and before long the shareholders might look for results in the shape of increased returns. (Hear, hear.)

Capt. SPARKS said he had visited the property, but he did not come here prepared to make any statement. He had been considerably going up with mining undertakings in Colorado, and had considerable interest in going up to see what was being done at Placerville in comparison with what was being done at Colorado. These comparisons were entirely favourable to Placerville. (Hear, hear.) He saw a great many things at Placerville which those working at Colorado would be able to profit from. He went to the mine with Mr. Price, who informed him how the property had been acquired, and what it was likely to achieve in the future. He realised of what importance it was to acquire the property which had been recently acquired. The company held property which might be in the hands of three or four companies. (Hear, hear.) The company possessed 7000 ft. on the length of the lode. Many of the large companies had only possessed 500 or 700 ft., and had paid splendid dividends. This would give them an idea of the extent and importance of this property, which he believed would be one of the largest and most important quartz mining properties in California. (Hear, hear.) He had an opportunity of examining the development in the 700 ft. level, which was something he had not expected to see; for quantity and cheapness of mining it was more than he had expected. With improved machinery \$6 was a high price to mine and mill the quartz. From all he saw of the property he arrived at a very satisfactory conclusion regarding it. He also fully endorsed all that had been said regarding the ability, energy, and experience of the general agent and manager.

The CHAIRMAN moved a cordial vote of thanks to Mr. Thomas Price, their able representative in California, for his efficient management of the company's affairs during the past year.

Mr. DOUGLAS NEAME seconded the motion. He said he had spent three months at San Francisco, and had made several trips to Placerville with Mr. Price, and had formed the highest opinion of the excellence of the property, and also of the ability and energy of Mr. Price, and also of Mr. Jones. He briefly referred to the mode in which the work was carried on, and mentioned that the drills were a great assistance in forwarding the rapidity of working.

The resolution was put and carried.

Mr. DOUGLAS NEAME proposed a hearty vote of thanks to the Chairman for



all that he had done in connection with the property. He said that Mr. Courtenay had had an uphill fight, and it must be a great pleasure to that gentleman to find that everything was now going on swimmingly. Everything looked so bright that he thought the shareholders might almost hope that in a year they would receive a dividend. It was important that the shareholders should be taken up, in order that the manager might not be stinted for funds, and be able to make good returns.

Mr. Wilson seconded the motion, which was put and carried. The CHAIRMAN acknowledged the compliment, and went on to say that the directors had received advice that Mr. Price had sent a box of ore from the 700 level, which he said was from the average streaks of ore encountered in the face of the drift, and he stated it was the best quartz he had seen in the mine. The specimen was extracted under Mr. Price's personal supervision. The box was expected to arrive in a few days at the office, and it is hoped that the shareholders would call and see the specimens.—The meeting then broke up.

#### FRONTINO AND BOLIVIA GOLD MINING COMPANY.

The half-yearly general meeting of shareholders of this company was held on Wednesday at the Cannon-street Hotel, Mr. THOMAS EYRE FOAKES in the chair.

Mr. J. JAMESON TRURAN (the secretary) read the notice convening the meeting, and the report of the directors was taken as read.

The CHAIRMAN said he thought the best thing they could do was to hear Mr. White before he made any detailed remarks. They had all been told by the directors that the mines had been managed by Mr. White in a most efficient and proper manner, but the opposition party had said that all the ore from the mines had been extracted; it would, therefore, be for the shareholders to judge after hearing the statement that would be made to them.

A SHAREHOLDER complained that he had not received a copy of Mr. White's statement until 11 o'clock that morning.

The CHAIRMAN explained that Mr. White arrived in England on June 2, after a severe illness; that that gentleman had then to find schools for his children, and had not consequently until recently been able to attend to the business of the company, but during the last few days he had been constantly at the offices of the company ready to answer any questions that should be put to him. Some further discussion took place upon this subject, and ultimately Mr. White rose to read his report, but several shareholders interrupted, and Mr. Atkins moved that the ordinary business of the meeting be proceeded with, and that Mr. White's report be considered at an adjourned meeting.

The motion was seconded by Mr. Seal, and carried by a majority.

The CHAIRMAN then said: Gentlemen, although I have enough proxies in my hand to counteract the vote, I do not propose, nor do my colleagues, to do so. I am quite ready to consider the directors' report now and to address you on that report. With reference, gentlemen, to the statement which is laid before you, I think it must be admitted that the 9600*l.* odd profit, which we show has been made in the six months ending December 31, 1881, compares, as we state in our report, very favourably with the corresponding six months in the previous year. In that year we had all the mines paying fairly well, and we had the advantage during the year of a rainy season, and may once more explain to you that the rainy season in ordinary times commences the middle of April and ends about the middle of October or the beginning of November. In the year 1881, the last year the dry season did not cease in April, but actually continued until the middle of October. I need not tell you, therefore, that looking to the fact that the ordinary dry season was extended so long our stamps were able to do very much less than they would have done otherwise; in fact, there was a diminution of 30 or 40 per cent. in the duty done by them, and that caused a very great falling off in our profits. Another thing which militated against the six months ending December 31 was this, which you will notice in the accounts which have been sent to you monthly, that in August, September, and October the amount produced by the Silencio Mine, on an average in those months, was 1245 or 1246 cwt. of gold, and then, unfortunately, when the rainy season did come it flooded the Silencio Mine, and the engine which we have there, which is a 4-horse power engine was unable to cope with the water, and the lower levels, where the richest minerals exist, and where we got 3 ozs. or more to the ton, were not available for stamping, and I need not tell you that the produce fell off to a very small amount, certainly for two months of the period of six months, that made a diminution in the return of gold of something like 1500*l.* in each month, so that had the ordinary course of events taken place, quite apart from the dry season, and had that mine not been so flooded, you would have found your profits for the six months would have been increased some thing like 3000*l.*, as against the 9600*l.* which we show to have been earned during the time. I think, therefore, that I may say that the six months ending 1881 have been very favourable, compared with the six months ending 1880. Now, gentlemen, with reference to another part of our report—that is with reference to the additional capital of 24,000*l.* which was authorised to be raised at the last meeting, you will remember at that meeting it was stated to you how we proposed to appropriate the money. There have been two circulars issued to the shareholders, which I think mistake what I on that occasion said to you. If you remember I told you that the proposal of the board was that you should issue 10,000*l.* shares at a premium of 10*s.* per share, and I also told you that if there were done the board would feel it their duty to appropriate that premium of 10*s.* (6000*l.*) to the payment of 2*s.* a share dividend. It pointed out to you on behalf of myself and colleagues that we considered that that was the best policy to pursue. It would make your shares stand in the market better, because it would be a dividend-paying mine, and it would in no way injure the prospects of the company. However, the circulars that were issued to you by Mr. Seal and his party induced you to agree to a proposition that instead of issuing 10,000 shares, as proposed, we should issue 12,000 shares, and that you should have those shares issued to you at par. Gentlemen, as you chose to pursue that policy, the proposal that the board made to you about the distribution of 6000*l.* the premium on the 10,000 shares fell to the ground, and it is not therefore consistent with the fact, as has been stated to you in the recent circulars issued, that I, on behalf of the board, pledged myself to you in the recent circulars issued, that I, on behalf of the board, pledged myself to you that 6000*l.* should be given to you in the shape of dividend. In fact, gentlemen, you had the dividend in the shape of the shares being issued to you at par. The shares the day before the meeting (I have just been reading the speech I made on that occasion) sold at 3*l.*, you had them at 2*l.*, you therefore were able to sell your shares for 1*l.* more than which you purchased them at. There are facts that are not to be refuted by any mere statements. Now the effect of not paying that dividend, I think, was to make your shares not so valuable in the market, for you will notice ever since that time there has been a tendency on the part of buyers of shares not to give so high a price for them; therefore, I think I may say the policy the board advised you to pursue was the soundest financial policy, and one which would have been much more to your advantage than the one you were led to adopt by what I considered a rather mistaken argument. Now, it has been said by the gentlemen who have sent these circulars that we ought to distribute this 6000*l.* which has been earned during the six months ending Dec. 31, in the shape of dividend. I think, gentlemen, that would be a most suicidal policy. That money has, in fact, been spent, as I told you at the last meeting, in the development of your mines—a development which is fully explained in Mr. White's report, now before you—and when you have had time to read the report you will see what results he anticipates will flow from the expenditure. He tells you what he has done in the shape of development, and the reason why a large expenditure became necessary when the Pocuné water was obtained. He has told you that the Pocuné water was thought of he had laid out his mines to produce 1000*l.* a month profit on the then expenditure, but that, since he had the opportunity of buying the Pocuné water, he saw how very large an addition to your property could be made by the utilisation of the water, and the erection of additional stamps and mills, and he has shown you that it entailed a much larger expenditure than otherwise would have been necessary. In fact, it enlarged the area of the capabilities of the mines. Of course, gentlemen, I know very well that many shareholders think of nothing of the details of the management of a mine; they only look at the monthly reports to see how much profit is obtained from the gold. In one sense, no doubt, it is a rough-and-ready way of looking at how a mine is going on, but it does not tell an experienced man what really is the benefit we ultimately derive from the expenditure which has been made; and I shall therefore take the liberty of reading one paragraph from Mr. White's report. He has spent a very large sum, it is true, but he has in my opinion spent it very profitably. He says: "I believe that by the month of August next we shall have been able to cut down all extra-ordinary expenditure in the extensions and improvements of which I have made mention as to be able to continue working the mines at almost their ordinary working cost, which I then anticipate will not exceed 80 per ton, including all expenses, and which will further be reduced to 55 per ton, when we are able to produce the full supply of mineral which the mines will be capable of giving us as soon as the works in connection with the Pocuné water are completed. To complete these works I count upon the capital which the directors have informed me is at my disposal, and I believe it will be sufficient. At the present moment our cost and produce when placed side by side do not afford any evidence of the vast amount of work we have done, nor of the position in which the mines now are. We are now only able to stamp a few tons more than in the year 1880, as you well know we only in November saw the first 12 heads of new stamps working with the Pocuné water, and we have by this mail received news that the second 12 heads of stamps in the Salada Mine has gone to work. On the completion of the stamps still to be erected in this mine, and in the Rosario, in the Tigrito, and the Silencio Mines, and counting also upon an improvement in the duty of Silencio stamps when assisted by the Pocuné water, and by the substitution of new stamps for the present No. 3 we shall, I am sure, be in a position to reduce the 3400 tons of mineral with which the mines are capable of providing us. I believe that mineral will produce 1½ oz. per ton, or (say) a value of 10,000*l.*, and if we still estimate the mines being constantly improved on a reasonable scale we may month profit which, if added to 800*l.* which we may at that time confidently expect to obtain from Cordoba, would make a total of 5800*l.* If we had not been aiming at obtaining such a result from our workings doubtless the expenditure would have been unjustifiable, but I venture to say that no one who examines our accounts and studies the plans of the mines, together with the reports of the ground broken monthly in levels driven and prospective work executed, will be able to say that my statements are exaggerated. I have left the Cordoba Mine out of general list which I gave you, in order to speak of it separately, as it really is an independent undertaking. We intend on the Cordoba mine, with part of the capital which is at our disposal, to erect another 12-head stamps, besides the one which is now commenced, and we may have money enough to substitute a 12-heads for one of the existing 8-heads. With 48 heads of stamps supplied with mineral from the splendidly developed Marmajito lode, and from the working of the Ruiz lode, which by that time will have been sufficiently developed, I believe that I can promise you an output of mineral of 900 tons per month, which ought to leave a profit of 1500*l.* per month, or even 2000*l.*, if, as I believe, we are so fortunate as to find the Ruiz lode go down as rich in depth as we have so far seen it." Now, I will just remind you that the Cordoba Mine was bought by Mr. White in settlement of a pending law suit about our timber, and was purchased by him for 4800*l.*—under 5000*l.*

#### A SHAREHOLDER: Was that purchased out of the new capital?

The CHAIRMAN: Yes; that was explained to you at the last meeting. We told you that out of new capital we should have appropriated a certain portion towards payment of purchase money for that mine, and also towards the payment of the purchase money for the Garibaldi Mine. Now, Mr. White has received instructions from us to curtail every expenditure which he could, except for the purpose of developing the Pocuné water; that is to say, to enable him to crush the large quantity of mineral which he has in reserve. Three or four of the mines, which I need not name, have been stopped, and to show you how valuable those mines are, the very hour after it became known Mr. White had been ordered to stop the working of those mines there were numbers of applicants, even in those remote parts, to take them on lease, and everyone has been leased on what is called tribute—that is to say, the lessee or tributary takes the mines in his own hands, and on all he makes pays the company a certain percentage. I am sorry myself that that was necessary to be done, but we are to a certain extent the instruments of the shareholders, and the board felt that looking to the strong expression of opinion passed by the shareholders as to the curtailment of the expenditure on capital account, we were bound to do one of two things—either let other people take the management of your affairs, or obey your directions to curtail expenses. That those expenses were curtailed as they have been I regret very much, because, as Mr. White will tell you presently, one or two of these mines were just on the point of making very considerable way, and no doubt had he been able to continue the work he should have had very considerable profits to add to those we now have. Having expressed his strong opinion that it would not be advisable to appropriate any part of the 9600*l.* profit in payment of a dividend, the Chairman, in conclusion, moved the adoption of the report.

—Mr. WM. BAXTER seconded the motion.

Mr. WHITE said, after some discussion, the directors were not in any way responsible for the delay in the issuing of his report. They had done a certain amount of work on the mines which were now on the point of bringing forth fruit. They might not have had, up to the present time, any great returns, but he anticipated great benefit from the outlay which had been incurred, especially that in connection with the acquisition of the Pocuné water. If they had not taken the precaution to get the water on to the mine, they would not have had to burden the concern with so very large an outlay. They had now placed the existing mines in a position to stamp during the dry seasons, and had the means of paying a good rate of interest on the additional expenditure of capital. They had in the Salada Mine, in connection with the San Joaquín, one of the largest undertakings at present in existence. In the Salada, they were treating 320 to 340 tons a month. He entered into details with regard to the company's different mines, and said that arrangements had been made by which the company could supply their miners with food, &c. They employed at times as many as 1000 men. A long discussion then ensued, in which Mr. Seal and Mr. Thomas Baxter (shareholder) severely criticised the policy of the board, and contended that the whole amount earned by the mine during the past four years was only 2000*l.*, the rest being gained by the profits on exchange. The former gentleman moved an amendment in favour of dividing the balance of profit of 9646*l.*, declaring the report of the directors unsatisfactory, and adjourning the meeting to July 26 next, that time would be given to the shareholders to peruse and consider the report of Mr. White.

The amendment having been seconded, it was put to the show of hands and lost by a majority of one, 17 voting for and 18 against it. The report was then adopted by a similar majority, whereupon Mr. Seal demanded a poll, which was taken then and there. The shares represented by Mr. Seal amounts to 615*l.*, while those which the directors represented amounted to 25,22*l.*

A vote of thanks to the Chairman and directors carried with three dissentients terminated the proceedings.

#### SOUTH WHEAL CROFTY.—At the meeting on June 23 (Mr. H. J. Lean in the chair) the accounts showed a loss on the 12 weeks' working of 842*l.* 2*s.* 6*d.*, and a debit balance of 3346*l.* 11*s.* A call of 7*s.* 6*d.* per share was made. The Chairman stated that they had sold 68 tons 3 cwt. of tin during the last quarter, against 26 tons 10 cwt. in the preceding quarter, but the average price was 9*l.* per ton less. Mr. Rule understood that Mr. Basset had offered a grant of the eastern part of North Crofty if they would work it. Captain Thomas said they could have the ground, but the objection he had to driving in that direction was that they might tap North Crofty and East Pool as well. The question was whether it would be better to drive on the two lodes in the 180 and 205 west, or drive a cross-cut north with the chance of cutting North Crofty lode. He should recommend the former course. They would want more boring machines and a larger air compressor before they could drive north. In the 180 end they had driven by boring 130 fms. in very hard ground. The boring machine was their own, and they did not set contracts to the men, which would be a difficult thing to do. He thought their machine as efficient as any used. The cost of the boring was 1*l.* 10*s.* per fathom. In reply to a shareholder, he said that he thought that as soon as the winze was through to the 180 from the 160 their returns would be increased. It would, however, take some two or three months to accomplish this.—On the motion of Mr. Mitchell it was decided to have a new engine and air-compressor, sufficiently large to drive four boring-machines, and with a view to prosecuting the north part of the mine.—Mr. Rule thought it only required a little energy to make South Crofty a valuable and lasting property.

Under the Licence and of Agreements with Her Majesty's Postmaster-General for Erecting or Renting Telegraph Wires in the United Kingdom.

#### THE ELECTRIC NEWS TELEGRAPH COMPANY (LIMITED),

for supplying stockbrokers, clubs, newspapers, hotels, news-rooms, private persons, and all telegraphic news, commercial, telegraphic news, commercial intelligence, parliamentary reports, sporting news, &c., throughout the day and night, by the company's self-printing machines.

First issue £100,000, in 20,000 shares of 5*l.* each (of which the vendors have agreed to accept 2500 fully-paid shares in part payment of the purchase money), payable as follows:—10*s.* per share on application, £1 10*s.* on allotment, and £1 on the 1st August, 1882, the balance in calls not exceeding £1 per share at intervals of not less than one month.

DIRECTORS: CHAIRMAN, Sir MICHAEL KENNEDY, K.C.S.I., Chairman of the Metropolitan "Electric Light and Power Company (Limited)."

The Hon. ASHLEY PONSONBY, Director of the Submarine Telegraph Company.

MORGAN LLOYD, Esq., Q.C., M.B., 4, King's Bench Walk, Temple.

A. F. PENNELL, Esq., Director of the Royal Courts of Justice Chambers Company (Limited).

\*WILLIAM J. BURNSIDE, Esq., Managing Director.

\*Will join the Board after the allotment of the shares.

SECRETARY: The City Bank (Limited), Threadneedle-street, E.C., and its branches.

JOHN COOPER, Esq., Chief Offices, 4, Ludgate Circus, E.C.; Stock Exchange Offices, 4, Warrford-court, Throgmorton-street, E.C.

ABRIDGED PROSPECTUS.

No branch of scientific research is now receiving more attention or is more productive of important practical results than electricity. One of the latest purposes to which it has been applied is in connection with a remarkable machine for supplying quotations and news of every kind direct into the offices and houses of subscribers by self-acting apparatus.

1. The purposes to which this invention has already been applied are very numerous, a large number of the machines being already established and in use in the City of London.

2. It is used for the purpose of transmitting to clubs, hotels, reading-rooms, newspapers, bankers, members of Parliament, sporting men, and others intelligence of every description as the events are recorded throughout the day and night, the extreme usefulness of which is obvious.

3. It is also applied for the purpose of transmitting direct to newspaper offices reports of parliamentary intelligence continuously throughout the sitting, the value of which, for the purpose of assisting the composition of daily newspapers, is very great, thereby saving much time thereby effected being of extreme importance, looking to the protracted hours to which debates are now extended. This system has been in full operation for some time past under special arrangements, and is already in use in the offices of a number of the leading metropolitan and provincial newspapers. It is obvious from the foregoing that this valuable invention is capable of development to a practically unlimited extent. It is remarkable for its simplicity, and is thoroughly reliable in action, the whole of its varied movements being regulated by one single wire. A single clerk can instantaneously transmit the news he may have to communicate to a thousand or more subscribers by one operation.

The company has secured the exclusive rights for this very valuable invention for the whole of the United Kingdom, and also the new patents for the improvements recently effected therein for the whole of the United Kingdom, France, and America, with the further right to patent improvements throughout the world. These improvements are of so important a character that the machine is believed to be the most perfect in existence, the only other machine believed to be in use being one which was patented some years ago, but which necessitates the use of two wires, whereas the whole of the work by the instruments under the patent secured by this company is done by one wire, resulting naturally in great economy in the working.

A letter has been received from Sir Charles Bright, the well-known electrician and engineer, expressing his opinion as regards the value of this invention, which is set out in the full prospectus. As a further proof of the appreciation in which it is held, the Indian Government, being desirous of introducing machines that charge into the Indian service, caused enquiries to be made, the result being that the instruments of this company were selected and an extensive order given, which has been executed to the satisfaction of the Government.

This company will itself carry on the business of supplying news in London, but it is expected that separate companies will be formed under the licence of the company for similar objects throughout the United Kingdom, the Continent, India, the colonies, &c., from which large profits should result. As will be seen by the list of subscribers, the system has been for some time past in operation in London on a large experimental scale, and the price which the vendors (who are the promoters of the company) have agreed to accept for the whole of the extremely valuable patent rights before referred to, including the existing business already established, with the plant, machines, &c., as a going concern, is the sum of £12,500 in fully-paid shares of the company, and £23,500 in cash. The following estimate will indicate the profits which are likely to result to this company merely from the business in London (see full prospectus) leaving a net annual profit of £20,000 equal to 20 per cent. on the capital of the company now for subscription, exclusive of what may be received for sale of patent rights or extension of system by the company to the provinces and abroad. Arrangements have been entered into with the Central News to supply the necessary intelligence.

The company is making arrangements for supplying its Stock Exchange subscribers with telegrams at an almost nominal charge.

It will be seen, therefore, that the field this company will occupy is most extensive. Looking to the large sums expected to be obtained by the sale of its licences, the profits of the enterprise as a "parent" company should be very considerable, and the prospects of the undertaking generally are highly encouraging.

Full prospectuses, containing particulars of the contracts which have been entered into, and Forms of Application for shares, can be had from the bankers, and from the secretary at the offices of the company, where the machine can be seen.

#### THE EXCHANGE TELEGRAPH COMPANY (LIMITED) CALLS

ATTENTION to a PROSPECTUS which has appeared to-day of the Electric News Telegraph Company (Limited), and which represents:

1st. That one of the latest purposes to which electricity has been applied is in connection with a remarkable machine for supplying quotations and news of self-acting apparatus.

2nd. That the system requires only one wire, which is claimed to be an important advantage.

3rd. That the Company has obtained exclusive rights for this very valuable invention, and that the improvements are of so important a character as to make the instrument the most perfect in existence.

4th. Upon the authority of a letter dated March 24, 1881, and published in the original prospectus of the Automatic Telegraph Company (Limited), that one of the improvements of a novel and ingenious character is "the peculiar self-adjusting appliance," by which the mechanism is brought into perfect unison at short intervals.

The directors of the Exchange Telegraph Company (Limited), considering that the prospectus might lead the public to believe that there was no other instrument of the kind in use, feel it their duty to publish the following facts:

1. They have had in operation in London an electrical type-printing instrument for 10 years, and, although two wires are used for the purpose of giving quotations, this plan has been adhered to by them, and is universally used in America as being admittedly the best for recording the prices of stocks and shares.

2. The Exchange Telegraph Company has had for the same number of years more than one description of single wire type-printing instrument, with double the speed of any other single wire instrument in this country.

3. The well-known MacMahon's Telegraphic News Company (Limited), which has now been at work since 1873, and which numbers at present about 150 subscribers, including 44 of the principal clubs, 9 newspapers, and 91 hotels, is now reorganised under the name of "The General Telegraphic News Company (Limited)," with a view to the extension of its operations in the provinces, under arrangements whereby the Exchange Telegraph Company (Limited) furnish the requisite instruments, depending upon results for its remuneration.

4. With reference to the third claim, the directors of the Exchange Telegraph Company beg to state there is nothing whatever in the instruments in question which their company is not entitled to use under their own patents, and they further claim that they possess instruments of greater speed, which are more reliable, and require less battery power than any possessed by the Electric News Telegraph Company.

5. The "peculiar self-adjusting appliance" referred to in the letter of 24th March, 1881, is not that which is now upon the instrument in use by the Automatic Telegraph Company, that having been discarded for one which is the subject of a patent belonging to the Exchange Telegraph Company, and steps will be taken to prevent its use.

6. They consider it an error to say that the whole of the varied movements of the instrument in question are regulated by a single wire, as they are partly dependent upon clockwork; and as regards the claim to a contract with the Central News, by which the Company upon payment of 10 per cent. on its gross earnings is entitled to all the news of the day collected by that Association, there is no stipulation in it that can be obtained upon much better terms than by any organisation prepared to work under the Telegraphs Act.

17 and 18, Cornhill, E.C., June 23, 1882.

#### THE EXCHANGE TELEGRAPH COMPANY (LIMITED).

(Established 1872.) Head offices, 17 and 18, Cornhill, London, E.C.; and at the Stock Exchange; Bartholomew House, 27, Regent-street, S.W.

This company is PREPARED to ENTER INTO ENGAGEMENTS with subsidiary companies for the purpose of SUPPLYING AUTOMATIC PRINTING TELEGRAPH INSTRUMENTS, free of all rents and royalties, payment being taken by results.

These instruments can be supplied to work upon single or double wire systems, and to print on either a tape or slip of paper, as hitherto, or on a broad band of paper, in column form.

In all cases these instruments are guaranteed to combine the greatest speed with the maximum amount of reliability and the least consumption of battery power of any system of type-printing apparatus now in existence.

The 10 years' experience of the Exchange Telegraph Company (Limited) in the working of type-printing instruments, assisted by data obtained from the Gold and Stock Company of New York, with whom the system originated, enables the management to supply instruments best adapted to the requirements of the various classes of news called for by the public, and where for long distances it may be desirable to have single wire system the speed will only be limited by the proficiency of the operator.

For further particulars and terms apply to the secretary, 17 and 18, Cornhill, London, E.C.

#### THE EXCHANGE TELEGRAPH COMPANY (LIMITED).

(Established 1872.) Head Offices, 17 and 18, Cornhill, London, E.C.

This Company continues to SUPPLY SUBSCRIBERS with Self-acting RECORDING INSTRUMENTS TELEGRAPHICALLY CONNECTED with the STOCK EXCHANGE (the only company enjoying that privilege), by the aid of which, at their respective offices, they may be kept advised throughout the day of the constantly occurring market fluctuations in stocks and shares, and other financial and commercial intelligence.

In all cases the information furnished by the Company is special, being obtained through reporters and agents appointed by the Company.

The instruments can be seen at work throughout the City in the offices of brokers, bankers, merchants, and others, and at all the evening newspaper offices, and the principal telegraphic and Press associations.

The instruments being automatic require no attention whatever from subscribers, no knowledge of telegraphy is requisite to understand their use, there is no need of a local battery, the printing in plain Roman characters, letters and figures in separate lines to prevent confusion, and the propulsion of the paper being effected by the electricity supplied from the offices of the Company.

Telephone Exchange service to subscribers, as above, practically free.

For further particulars and terms apply to the secretary, 17 and 18, Cornhill, London, E.C.

#### THE GENERAL TELEGRAPHIC NEWS COMPANY (LIMITED).

(Limited) (late MacMahon's Telegraphic News Company (Limited). Head Offices, 17 and 18, Cornhill, London, E.C.; with branches at Liverpool, Manchester, and Glasgow.

This company having had transferred to it the business of MacMahon's Telegraphic News Company is PREPARED to CARRY OUT THE ENGAGEMENTS of the latter company in London for the Instrumental Delivery of News and Extension of the same.

The service will be made as complete as possible, and will embrace the Parliamentary, political, commercial, sporting, and general news of the day.

During the Session particulars of the proceedings of both Houses of Parliament, results of divisions, &c., will be supplied as they occur, the company having a special wire therefrom to their head offices, from whence information will be at once distributed.

The sporting intelligence of the company will be derived from the same source as hitherto supplied by MacMahon's Telegraphic News Company (Limited), which has been universally admitted to be most complete and rapid that can be obtained.

Arrangements are being made for the supply of special intelligence to the company by correspondents at the chief political, financial, and commercial centres abroad, and channels are being opened for the prompt reception of what may be comprehensively termed "general news"—in short, it will be the aim of the directors to utilise every possible means to meet the wants of the public.

The intelligence will be delivered by the company to all its subscribers simultaneously.

For further particulars and terms apply to the secretary, 17 and 18, Cornhill, London, E.C.

#### THE GENERAL TELEGRAPHIC NEWS COMPANY (LIMITED).

(Limited). Head Offices, 17 and 18, Cornhill, London, E.C.; with branches at Liverpool, Manchester, and Glasgow.

The Director beg leave to call attention to the exceptional advantages which are offered to subscribers in the provinces by this telegraphic news company, which combines the financial intelligence of the Exchange Telegraph Company (established 1872) and the parliamentary, sporting, and general news of MacMahon's Telegraphic News Company (Limited) (established 1879), with a special service of its own.

The instruments used by this Company for the delivery of news are entirely self-acting, require no local batteries and no knowledge of telegraphy on the part of the subscriber, and print in plain Roman characters upon a continuous slip of paper, which can be detached at pleasure.

They are to be found in London at the principal clubs, newspapers, bankers, brokers and merchants' offices, hotels, restaurants and taverns, theatres, and private residences.

The service will be made as complete as possible, and will embrace the Parliamentary, financial, commercial, sporting, and general news of the day.

During the Session particulars of the proceedings of both Houses of Parliament, results of divisions, &c., will be supplied as they occur, the Company having a special wire therefrom to their head offices, from whence the information will be once wired to the provinces.

The financial intelligence will be supplied by the Exchange Telegraph Company, and will be similar to that furnished to stockbrokers and others in London.

The sporting intelligence of the Company will be derived from the same source as that hitherto supplied by MacMahon's Telegraphic News Company (Limited), which has been universally admitted to be the most complete and rapid that can be obtained.

Arrangements are being made for the supply of special intelligence to the Company by correspondents at the chief political, financial, and commercial centres abroad, and channels are being opened for the prompt reception of what may be comprehensively termed "general news"—in short, it will be the aim of the directors to utilise every possible means to meet the wants of the public.

The intelligence will be delivered by the Company to all its subscribers simultaneously.

As it is probable that the service of news required by one subscriber may differ entirely from that of another, the wishes of intending subscribers will be ascertained, and the services will be organised in accordance therewith.

For further particulars, apply to the Secretary, at 17 and 18, Cornhill, London, E.C., or to the local managers.



## LIST OF CHINA-CLAY WORKS.

Name of Work.	Name of Company.	Lord.	Parish.	Shipping Ports.	Railway Station.	Annual Output, Tons.	Annual Import, Tons.
St. Dennis Consols.	Brown Brothers.	H. Whitford, Esq.	St. Dennis	Par. Padstow.	Drinnick.	4,000	450
Gothers Higher.	Pennell and Co.	Gill and Ivey.	St. Dennis	Par. Padstow.	Drinnick.	3,500	390
Parkindinick.	Chas. Truscott.	Lord Falmouth.	St. Dennis	Par. Padstow.	Minerals.	6,000	750
Hendra Quarry.	Lovering and Co.	C. Treffry, Esq.	St. Dennis	Fowey, Padstow.	Drinnick.	3,000	350
Higher Gothers.	Pochen and Co.	H. Whitford, Esq.	St. Dennis	Par. and Charlestown.	Drinnick.	6,000	650
Gothers.	W. R. Varcoe.	H. Whitford, Esq.	St. Dennis	Par. Padstow.	Drinnick.	2,000	300
Trelavour Downs.	Truscott and Sons.	Lord Falmouth, E. Treffry.	St. Dennis	Par. Charlestown.	Drinnick.	3,000	300
Hendra Down.	West of England Co.	C. E. Treffry, Esq.	St. Dennis	Par. Fowey.	Drinnick.	5,000	500
Hendra.	T. Stocker and Co.	Lord Falmouth.	St. Dennis	Par. Padstow.	Drinnick.	5,000	500
Restowrack.	W. and R. Varcoe.	Lord Falmouth.	St. Dennis	Par. Charlestown.	Goovevan.	5,000	500
Goovevan.	W. and R. Varcoe.	Lord Falmouth.	St. Dennis	Fowey, Padstow.	Slip Siding.	7,500	800
Meleador.	Oliver and Nicholls.	Hawkins and Beacham.	St. Stephens	Par. Padstow.	Grampond Road.	3,500	370
Virginia.	Oliver and Co.	Beacham.	St. Stephens	Par. Padstow.	Burngallow.	3,000	350
Great Treviscoe.	Geo. Leamon and Co.	Rev. G. Lamb.	St. Stephens	Par. Padstow.	Minerals.	5,000	600
Trethosa.	West of England Clay Co.	Hon. G. M. Porteus.	St. Stephens	Fowey, Padstow.	Minerals.	5,000	500
Little Treviscoe.	Martin Bros.	Rev. G. Lamb.	St. Stephens	Par. Padstow.	Minerals.	3,000	350
Old Slip.	Oliver and Co.	Oliver and Yelland.	St. Stephens	Par. Padstow.	Slip Siding.	1,500	200
Tregargie.	Lovering and Co.	E. Goode, Esq.	St. Stephens	Par. Fowey.	Drinnick.	8,000	250
Carloggase, North.	West of England.	Hon. G. M. Porteus.	St. Stephens	Par. Fowey.	Drinnick.	10,000	1,500
Carloggase, South.	West of England.	Hon. G. M. Porteus.	St. Stephens	Par. Fowey.	Drinnick.	6,000	600
Carloggase, East.	West of England.	Hon. G. M. Porteus.	St. Stephens	Par. Fowey.	Drinnick.	12,000	1,300
Dubbers.	West of England.	Hon. G. M. Porteus.	St. Stephens	Par. Fowey.	Drinnick.	4,000	400
Bloomdale.	Bloomdale Clay Co.	Exors. Geo. Finch, Esq.	St. Stephens	Padstow, Fowey.	Drinnick.	3,500	350
Bowser.	W. and R. Varcoe.	Lord Falmouth.	St. Stephens	Padstow, Fowey.	Drinnick.	5,000	500
West Slip Quarry.	Tweedy and Co.	Lord Falmouth.	St. Stephens	Padstow, Fowey.	Drinnick.	1,500	200
Goonmarris.	Reps. W. Luke, Esq.	Dawe, Esq.	St. Stephens	Padstow, Fowey.	Drinnick.	1,500	200
South Goovevan.	Tremayne and Co.	E. W. Tucker, Esq.	St. Stephens	Padstow, Fowey.	Drinnick.	1,200	200
South Goovevan.	J. Rogers and Co.	Lord Falmouth.	St. Stephens	Fowey, Par.	Drinnick.	3,000	350
Carpella.	Carpella Clay Co.	Edw. Coope.	St. Stephens	Fowey, Par.	Drinnick.	15,000	1,600
Retew.	West of England Iron Ore Co.	Remfry, Esq.	St. Endor.	Fowey, Par.	Grampond Road.	3,000	400
Huel Parson.	Chas. Truscott.	R. Parsons, Esq.	St. Endor.	Par. Padstow.	Minerals.	4,500	470
Blackheath.	Norfolk and Co.	Lord Falmouth.	St. Endor.	Fowey, Padstow.	Retew.	2,500	300
Meleador Downs.	Lovering and Co.	Beacham.	St. Endor.	Fowey, Padstow.	Retew.	2,500	250
Wheal Benallick.	H. Labouchere and Co.	R. G. Bennett, Esq.	St. Endor.	Par. Padstow.	Mellangoose.	7,000	700
Hallow.	J. Norfolk and Co.	Hon. G. M. Porteus.	St. Endor.	Par. Padstow.	Mellangoose.	10,000	900
Wheal Henfy.	Burgoths Clay Co.	R. G. F. Henfy.	St. Endor.	Par. Fowey.	Retew.	9,000	900
Great Halwyn.	Great Halwyn Co.	Lord Falmouth.	St. Endor.	Par. Fowey.	Retew.	7,000	700
Fal Valley.	Fal Valley Clay Co.	Lord Falmouth.	St. Endor.	Par. Fowey.	Mellangoose.	4,000	450
Burthly Row.	Fal Valley Clay Co.	Lord Falmouth.	St. Endor.	Par. Fowey.	Mellangoose.	7,000	700
Retew.	West of England Ore Co.	Remfry, Esq.	St. Dennis, Roche.	Par. Padstow.	Wadebridge, Padstow.	8,000	790
Burnthearth.	Elias Martyn and Son.	Lord Falmouth.	Cardinham.	Wadebridge, Padstow.	Wadebridge.	1,500	150
Glyn Valley.	F. Parkyn, Esq.	Lord Falmouth.	Cardinham.	Wadebridge, Padstow.	Wadebridge.	1,000	350
Huel Burn.	Collins and Norfolk.	Lord Falmouth.	Cardinham.	Wadebridge, Padstow.	Wadebridge.	3,000	350
Vivian Kallin.	F. Parkyn, Esq.	Lord Falmouth.	Cardinham.	Wadebridge, Padstow.	Wadebridge.	1,500	150
Hawke Tor.	Hawke Tor Clay Co.	Sir Wm. Houslow.	Blisland.	Wadebridge, Padstow.	Wadebridge.	4,000	450
Darford.	F. Parkyn, Esq.	Sir Wm. Houslow.	Blisland.	Wadebridge, Padstow.	Wadebridge.	1,500	150
Carven.	Orange and Co.	Sir Wm. Houslow.	Blisland.	Wadebridge, Padstow.	Wadebridge.	4,000	450
Durford.	F. Parkyn, Esq.	Capt. Morhead, R.N.	St. Austell.	Fowey, Par.	St. Austell.	9,000	900
East Caudledown.	West of England Ore Co.	Hon. G. M. Porteus.	St. Austell.	Charlestown, Par.	Bugle.	4,000	450
outh Caudledown.	J. Lovering and Co.	Gill and Ivey.	St. Austell.	Charlestown, Par.	Bugle.	9,500	950
Caudledown.	Higman and Co.	Gill and Ivey.	St. Austell.	Charlestown, Par.	Bugle.	4,000	400
Kerrow Moor.	Triscott and Bala.	Gill and Ivey.	St. Austell.	Charlestown, Par.	Bugle.	9,000	900
Beam.	Gilbert and Martyn.	Gill and Ivey.	St. Austell.	Charlestown, Par.	Bugle.	5,000	500
Rosevear Moor.	Nicholls and Co.	Rev. G. Lamb.	St. Austell.	Charlestown, Par.	Bugle.	2,000	200
Imperial Goonbarrow.	Birch and Co.	Rev. G. Lamb.	St. Austell.	Charlestown, Par.	Bugle.	7,500	750
Temple.	Roche Goonbarrow Co.	Rev. G. Lamb.	St. Austell.	Wadebridge.	Drinnick Carbis.	not working.	
Great Wheel Prosper.	F. Parkyn, Esq.	Lord Falmouth.	Roche.	Par. Fowey.	Carbis.	3,000	350
West Goonbarrow.	Great Wheel Prosper Co.	Lord Falmouth.	Roche.	Par. Fowey.	Bugle.	5,000	500
Great St. George.	W. D. Jones and Co.	Lord Falmouth.	Roche.	Par. Fowey.	Bugle.	5,500	550
Wheal Henry.	J. Bickerton and Co.	Lord Falmouth.	Roche.	Par. Fowey.	Carbis.	6,000	600
Bavath.	Crowe and Co.	Lord Falmouth.	Roche.	Par. Fowey.	Carbis.	2,000	200
Littlejohns.	Littlejohns.	Lord Falmouth.	Roche.	Par. Fowey.	Carbis.	10,000	1000
Carigan.	Pagen and Co.	Lord Falmouth.	Roche.	Par. Fowey.			
Coldvreach.	West of England Iron Ore Co.	Lord Falmouth.	Roche.	Par. Fowey.			

Roche, Cornwall, June 20.

ALFRED E. J. TREGAY.

## FOREIGN MINES.

**ALAMILLOS.**—June 20: In the 20, driving west of San Martin shaft, the lode produces stones of lead, but not enough to value. The lode in the 60, driving east of San Felipe shaft, is unproductive. In the 40, driving west of San Felipe shaft, the lode is cut off by a large cross course, and the men are driving north to intersect it. The 60, driving east of San Enrique shaft, is passing through an unproductive bar of ground. The lode in the 130, driving east of Taylor's engine-shaft, has declined in value to 1 ton per fathom. The 130, driving west of Taylor's engine-shaft, is producing good stones of ore, worth 1/4 ton per fathom. The 80, driving east of San Victor shaft, continues to work well, producing 2 tons of ore per fathom. The lode in the 50, driving in the same direction, does not contain any lead. In the 80 (middle lode), driving west of San Victor shaft, there is a strong promising lode worth 1 ton per fathom. The lode in the 80, driving west of San Victor shaft, is small and poor. The 50, driving west of San Victor shaft, produces stones of ore. In the 70, driving west of San Victor shaft, the lode is of no value. Good progress is being made in the 60 cross-cut, south of Judd's engine-shaft. Linares Winze, sinking below the 70, is going down in splendid lode worth 3 tons per fathom.

**BROADWAY GOLD.**—J. W. Plummer, June 8: We are still stopping east of new shaft above the 25 ft. level. The vein is 3 ft. wide, producing quartz, which assays from \$16 to \$20 per ton. The 75 ft. level is for the time suspended. The winze reported in my last as being commenced is 10 ft. deep; the vein is from 2 to 4 ft. wide, but we anticipate that it will widen as we go down on the 20 ft. level. The lode resembles that of the 125 ft. level. The slope east of shaft is producing fine ore; the vein is 4 to 5 ft. wide. It is, however, not very long, but its width and height will counterbalance that. In the 125 ft. level the cross-cut has been extended for the week 3 ft., making a total of 17 ft. of vein matter, of which 14 ft. can be called saving quartz. We have advanced the west drift 6 ft. for the week, and the east drift 6 ft., making a total of 15 ft. of driving for the week. I think we cut the vein at a swell or chamber, and that it will narrow down somewhat as we advance with the levels.

**BUENA VENTURA.**—June 21: The lode in the 22, driving east of Henty's engine-shaft, continues very regular, and yields occasional stones of ore. Good progress is being made in the 30 cross-cut, south of Henty's engine-shaft. In the 20, driving east of Taylor's engine-shaft, the lode is small, and the ground harder for driving. The lode in the 30, driving in the same direction, contains a little ore, but nothing to value. At Taylor's engine-shaft, sinking below the 30, the lode has improved to 1/2 ton per fm., but the producing is hard for sinking.

**CANADIAN COPPER AND SULPHUR.**—F. Bennett, June 18: At the Hartford Mine, No. 5 shaft, the vein in the 70 east continues large and good. The vein in the 40 east is about 2 ft. wide of 6 per cent. ore. At No. 3 shaft there is no important change. At No. 1 shaft the vein in the 35 west is improving. At St. Francis Mine we have commenced to drive a 30 fm. level east and west of the shaft. There is a branch, or rather leader, 2 to 4 in. wide, of 30 to 40 per cent. copper ore in these drifts. At Acton Mine there is no change to report. The smelting works are running satisfactorily, the regulus being of better grade than for some little time past.

**COLOMBIAN HYDRAULIC.**—E. S. Jones, May 18: Malpas: Run No. 83, during which washing was carried on for 451 hours, produced \$2731.52, the cost for the same period being \$1853.94. During the past month's washing was carried on at the upper mine, the results of which (as shown above) were more favourable than they have been at the new opening. We have decided to work at the new opening this month as it will enable us to extend the sluices at the upper workings, and make the necessary preparations for the next month's run. Piping was commenced yesterday at the new opening after extending the sluices for a length of 40 ft. as far as the grading had been done during the month. Several boulders had to be blasted, and a portion of the bed-rock that crosses the cut. We do not anticipate next run will be so profitable as the past as the gravel is harder and not so rich, but no doubt will more than pay cost.

**COLOMBIAN HYDRAULIC.**—The following telegram has been received from the mines:—We have cleaned up, after a run of 30 days, during which time we have washed 540 hours, the gross returns are \$2750 (\$500). Everything is running smoothly again now, and we have plenty of water.

**DEVALA MOYAR GOLD.**—Extracted from the Mine Manager's Report, June 2: Salomon's Reef: We have done very little at this reef during the last fortnight, but it is well opened up. A large amount of progressive work has been accomplished, and a great quantity of good looking quartz is in sight. Strathern Reef: We have been timbering up the main drive and laying sleepers and rails. The drive going north in the end of the old tunnel has been driven 7 ft. during the week. The reef is wide, and the quartz looks well. Strathern Mill is progressing well, and I am in hopes that it will be running in two months' time. The office and storehouse are completed. The blacksmith's shop is up, foundations for stamps completed, and the houses are up. The engine foundations are nearly finished. The boilers for the steam engines are in place. In fact, all things going on well. The timber which has been causing delay is now coming in fast.

**DINGLEY DELL ESTATES AND GOLD.**—Capt. Williams, June 2: I am pleased to inform you that I am able to get at my work again, and also J. Harris Green is a little better, but Radford is now down with the fever. So you see it has gone the entire round of us, but some mines here have suffered worse than ourselves, and have had to stop work altogether, and the men sent either to Ootacamund or Calicut. Half of the Europeans now in the district are sick, but I hope in about a fortnight the worst will be over, at which time the monsoon will be expected to break. Mr. Ryan has suggested some alteration in the tables by putting down Australian ripples made of wood instead of using the copper ripples sent out from England. This is now being made. The alluvial we shall continue to prospect, and as soon as we find anything will put down machinery to work it. I beg to hand you the following as my report of this mine. No. 3 reef is now to be driven in one place to the footwall. We find it here to be from 8 feet to 10 feet wide on nearing the underlying wall which we have just cut through; the quartz appears to be of a most promising character, appears to be of better quality and shows some specks of visible gold. Altogether it is of a most promising character, and no doubt with the machinery about to be sent out better results will be obtained. We shall select some of these better class quartz for crushing and treatment, which I trust will be more satisfactory. No. 3 tunnel is driven from the base of the hill 30 ft., and intersects the reef at the point of intersection it is about 4 ft. wide. We have opened it to the north 12 ft., and every foot driven in it increases in width. It carries a leader on each side about 8 in. wide, containing considerable pyrites, and the centre of the lode quartz. No. 1 tunnel is driven 71 ft., and we hope in a short time to intersect the reef. This tunnel is being close timbered, and we

hope to get everything ready before the monsoon breaks. In future we intend to actively develop No. 3 reef from the deep tunnel by driving two ends on the line of the reef north and south. This will prove its value at a depth of 100 ft. below the surface. This will drain the surface portion of the south, and I trust enable us to work without any delay. We have some men out prospecting, but nothing new of late has been discovered. The pulverizer, although it gives some trouble, I hope to be able to keep it on until the other machine arrives. Those solid balls play dreadful havoc with the sides of the pulverizer, having worn a great deal of sides in one day's crushing. We have only one shaft left, and in order to favour this as much as possible we shall have to resort to the stationary pins and the hollow balls. This alteration will have to be made on the mine; but when done it will enable us, with the stock of rings and balls now on the mine, to carry us on for a considerable time. The prospecting and development of the property will be carried on with all energy, and although success has not attended us so early as I expected, notwithstanding, for the time we have been working the prospects of Dingley Dell will compare favourably with any mine in the Wyanad.

**EBERHARDT.**—F. Drake: Statement of progress for week ending June 3: The 6000 ft. west, total distance, May 27, 1237 ft.; total distance, June 3, 1237 ft.; run for month of May, 72 ft. Drift No. 1, total distance, May 27, 139 ft.; run for week ending June 3, 40 ft. total distance, June 3, 179 ft.; run for month of May, 103 ft.; run for month of June, 18 ft.; cross-cut west from Drift No. 1, total distance, May 27, 14 ft.; run for week ending June 3, 4 ft.; total distance, June 3, 18 ft.; run for month of May, 18 ft.; Drift No. 2, total distance, May 27, 46 ft.; total distance June 3, 46 ft.; run for month of May, 3 ft. 6 in. Drift No. 3, total distance, May 27, 46 ft.; run for week ending June 3, 7 ft. total distance, June 3, 53 ft.; run for month of May 27 ft.; run for month of June 3 ft. During the past week in the 6000 ft. west no work has been done. I have kept the drills at work in Drift 1, driving east and west along the header mentioned in my last. After running west 8 ft. we again came upon the north and south wall, and now have it good and strong. The stuff we find lying along the wall is quartz, spar, and lime rock, and we have some chlorite. The upraise from Drift 2 continues to look very favourable. At a point of 50 ft. in the upraise I have started a drift south along the wall. We have had considerable quartz and some chlorite. I consider the general outlook of our work as most encouraging.

**EUREKA (NEVADA) SILVER.**—The report on mines for the week ending June 5 is as follows:—Bald Eagle: The ore body at the end of the south drift from the new cross-course, 150, is not producing quite as much good ore as heretofore; the ore body is increasing in size, but is much lower grade. The ore we are now mining is being assayed more carefully, and will be of a much higher grade than the last shipment.—Williamsburg: There is a slight improvement in the ore body below the second level. There is about 25 tons of ore extracted ready for shipment.

**FLAGSTAFF SILVER.**—M. Gunderson, June 11: Following is the report for the week ending to-day. The No. 5 level is now in 78 ft., gain 6 ft. the past week; there is no change in rock. The No. 2 cross-cut running from drift in rise between Nos. 5 and 4 levels was run 9 ft. the past week; the ground looks very well here. The cross-cut on No. 4 level is in 40 ft., gain 6 ft.; rock still continues the same—hard. The cross-cut above the No. 4 level is in 60 ft., gain 10 ft.; we struck a small slip of iron, which I shall follow. The rock here looks very well for ore; I think there is a body of high-grade ore in this neighbourhood. We took out about 5 tons of good ore the past week; the ore still continues in the face, and is about 1 ft. wide by 3 ft. high; we have not done much in the face on account of having to take out too much waste. I started to rise on ore in back from face about 45 ft., when the ore got bigger, and is simply immense; it measures 5 ft. by 14 ft. where we have stripped the rock off on one side, and still continues going up a well toward. I cannot of course say how thick it may be, but I shall run through the ore this week, and can then tell you more definitely what there is of it. The cross-cut above the tunnel level is in 46 ft., gain 34 ft.; we struck a small body of good iron ore with a small streak of silver ore on one side of the iron; as we just struck this yesterday, I cannot tell you what it will prove to be, but think there is a good show for a body of good ore. I have also started a cross-cut on the tunnel level running towards the hanging-wall. The weather is very fine. The number of miners, nine; labourers, four; timbermen, one; cook and foreman, total, 16.

**FORTUNA.**—June 21: Driving west of San Pedro's shaft, the lode is regular and well-defined, producing 1/2 ton per fathom. The lode in the 80 driving in the same direction has greatly improved during the past few days, being valued at 1/2 ton per fm. In the 90, driving west of San Pedro's shaft, the lode is regular and well-defined, producing 1/2 ton per fathom. No lode of any value has yet been met with in the 90, driving east of San Pedro's shaft, although it shows signs of improvement. The 120, driving east of O'Shea's engine-shaft yields occasional good stones of ore, but not enough to value. The lode in the 100, driving east of Lowndes's shaft has improved, and is laying open fairly productive ground, worth 1 ton per fathom. Martinez winze, sinking below the 90, is holed to the 100 east of Lowndes's shaft; the lode produces 1/2 ton per fathom. In Munoz's winze sinking has been resumed below the 70; the lode does not contain ore to value. Arabi's winze, sinking below the 110, west of Judd's shaft is coming down on the 120, west of O'Shea's shaft; the lode is valued at 1 ton per fathom. Los Salidos per ton, or (say) 1000, per fathom. This point is some distance from the ore, and a discovery which will be a great benefit to the company. The ore does not appear to contain much iron, which is a great advantage. There is no change to note in the value of the No. 3 and 4 ends at the north mine. I will send the 50 tons of lead sold to Messrs. Quirk, Barton, and Co., as early as possible next week.

**PIERREFITTE.**—June 24: The manager reports as follows:—I am pleased to inform you that we have cut the lode at the south mine in the adit level end; this occurred to-day. Of course, we cannot yet tell how big this lode is, or how rich, but there is ore the whole width of the end, and I myself broke some very fine stones, part of which I send you by this evening's train. I trust in a few days time to have something important to tell you about this lode. Our end is somewhat below the bottom of shaft. In a short time we shall put up a rise to communicate.

—June 26: The appearance of the lode which we have just cut at the south mine is exceedingly good. We seem to have met the lode at its footwall, but as the men have worked on it only for an hour or two they have not got into it far enough to show its value. But if the lode should turn out to be large, and should contain throughout mineral such as I broke yesterday, we shall have made a discovery which will be a great benefit to the company. The ore does not appear to contain much iron, which is a great advantage. There is no change to note in the value of the No. 3 and 4 ends at the north mine. I will send the 50 tons of lead sold to Messrs. Quirk, Barton, and Co., as early as possible next

week. Ore dressed for four days' work this week (some changes being necessary in machinery):—Upper floors 9 tons, and 5 tons at the lower floors, and we have put aside about 15 tons of blende stuff to be redressed. No rain has fallen during the past week, and our supply of water is decreasing. Late advices from Pierrefitte state that the ore from the south mine above alluded to has yielded by assay 71 ozs. of silver per 20 dwts. of ore, and 59 per cent. of lead.

**RHODES REEF GOLD.**—Extracted from the mine manager's report, June 2: I have to inform you that the reverberatory furnace and Chilian mill are completed. We have a large heap of pyrites piled in the buddle-house, and are collecting more every day, but the pyrites is not as clean as we want them to treat, so we shall not put the sulphides through the furnace and pans until we dress them again. This dressing cannot be done until the new buddle-gear comes which will be within ten days. The expenses at the reef and mill will be very light from this time. The mill will not only pay its own expenses but leave a profit to the company. We are only running 10 stamps, and will continue to until the buddle-gear comes, when we will start 20. The mill is running very smoothly, and crushes splendidly. We are opening up the reef as fast as we can. The drive we are starting in the level of the tramway to mill pass is the main tunnel, which we call No. 1; this is now 22 ft., and will be continued up the hill on the line of reef as far as the reef may extend, and will be the tunnel through which all quartz will be conveyed to the mill. A. Morgan has been idle for the week, contractor being sick. No. 3 Tunnel: The drive going south in the end of No. 3 tunnel has been driven 3 ft. on the lode; total 31 ft. The drive going north has been driven 1 ft.; total 30 ft. The lode in both these drives continues good, 4 to 5 ft. wide, containing some free gold and a large quantity of pyrites, which from tests we have made should yield well.

**RICHMOND CONSOLIDATED.**—The following telegram was received this morning (June 27) from the mine at Eureka, Nevada:—Week's run (1 furnace), \$26,000, from 475 tons of ore; refinery, \$25,000. Samuel Longley, June 5: I have to report the following advance and the present condition of the dead work for the week ending June 5, 1882:—The 300 east drift, over No. 11 chamber, has been run 3 ft. in limestone. Stopped May 31, partly temporarily withdrawn to cut out station at 30 level shaft. The 300 west drift, over No. 10 chamber, has been run 9 ft.; stopped drifting May 29, and commenced breaking ore in face and sides of drift. The 400 south from cave, over No. 15 chamber, has been run 3 ft. in limestone, unfavourable; stopped 31st. The 400 north-west drift, from east drift, has been run 9 ft. in limestone; stopped May 31. The 700 north drift, from west drift, at quartzite contact (Burleigh drill) has been run 5 ft. in limestone. The 700 west drift from station (Burleigh drill) has been run 15 ft. in limestone. The 700 north drift from winze, under 13 chute, has been run 14 ft. in limestone; stopped May 31. Exploration of this section continued by 700 north drift, from west drift. The 800 north-west drift, from west drift (Burleigh drill) has been run 8 ft. in limestone. The 800 north drift from quartzite (Burleigh drill) has been run 7 ft. in stratified limestone; stopped May 31, unfavourable. Drill set to work in new north drift from 800 quartzite drift. The 900 north drift, from west drift (Burleigh drill) has been run 19 ft. in limestone, stratified. The 900 north-east drift, from north drift (Burleigh drill) has been run 7 ft. in limestone. The 900 south-east drift from north-east drift, from north drift (Burleigh) has been run 2 ft. in limestone. All drifts on the 900 level were stopped May 31, for the purpose of rising and sinking in ledge matter on the 900 north-east drift.

**RIO GRANDE DO SUL GOLD.**—Henry Eddy, May 15: Aurora: The eastern shaft is now complete to the bottom of No. 2 gallery, and we have commenced to drive. The distance between the gallery and shaft is 10 metres, and should no flood occur to interfere with our progress this will be completed about June 10. (Note: Telegram received June 26 that this is not the case.) A. Morgan, secretary: Considering the hardness of the ground the progress has been fair. As soon as this work has been completed No. 1 gallery will be resumed, and stopping on the lode will commence. Simultaneously with these, No. 2 gallery will be driven east and west, and the cross-cut will be pushed on north to intersect Meza's and other lodes in that direction, the former having produced some good quartz. Reduction Works: 3 tons of ore broken in the side of No. 2 gallery on the shoot of ore previously reported having given 5 1/2 ozs. of gold, an average of 1 1/2 oz. to the ton. The whole broken from that shoot of ore will be approximately as follows:—3 tons reduced at 1 1/2 ozs.; 1 cwt. of nearly select quartz at 36 ozs. = 1 1/2 oz.; 7 tons (sampled only) at 9 1/2 dwts. = 3 ozs. 6 dwts. total, 10 ozs. 6 dwts.

**RUBY AND DUNDEBERG.**—Report on mines for the week ending June 6: Dunderberg: The ore discovered in the drift from the bottom of No. 7 winze is not developing as well as was expected, at present it is about 2 ft. in width and is rather low grade. Work was resumed in the No. 9 cross-cut a few days ago; the ground is somewhat harder, but is of a more favourable character for ore; progress this week 6 ft.; total 206 ft. The 700 ft. level. The south drift from the No. 8 cross-cut has been advanced 16 ft. during the week without a change. There is a slight improvement in No. 8 ore body, above the 700 ft. level. There has not been any work done in No. 8 ore body, below the 700 ft. level, during the week, owing to the lack of ventilation; we are now erecting a blower, which will be completed in a few days, when work will be resumed. The ore in the upraise near the end of the north drift from the west cross-cut, in the 600 ft. level, continues from 8 in. to 1 ft. in width. I have hoisted about 50 tons of ore and shipped 107 tons during the week; 32 men at work.

Lord Byron: The tunnel is now in much harder rock; progress this week 10 ft.; total 54 ft.; two men at work. Bullwhacker: The 400 ft. level has been advanced 12 ft. during the week; total 218 ft. from the shaft. Work has been suspended in the end, and a drift commenced in a northerly direction at a point 175 ft. from the shaft on a vein of favourable looking ledge matter; progress since the 1st inst. 17 ft.; four men and two tributaries at work.

—Copy of telegram received from Eureka to-day (June 27): The ore shipped during the week was 12 tons. There is no change in the mine since the report of the 14th. **SANTA BARBARA.**—The directors have further advices from the mine which they consider satisfactory as showing that no time will be lost in opening out the mine to the north by means of the No. 3 (styled in Mr. Treloar's letter of May 17, No. 4) shaft, and that being entirely separated by a bar of lode from the old mine to the south, this new mine can be worked to far greater advantage as regards economy than was the case with the old mine, and at the same time without danger from any catastrophe such as has happened to the old mine. T. B. Treloar, May 24: . . . In fact, putting the matter briefly, what at the first blush has the appearance of a crushing calamity, will in the end, I have no doubt, be a great blessing to the company. With one or two exceptions, the whole of the mine freemen have been paid off, as well as many at surface, and the following



winze, sinking below the 45, east of Henty's engine-shaft, the lode has fallen off in value to 1 ton per fathom. In the 25, driving east of the engine-shaft, we have holed to El Clarin, and are driving east of the shaft. The lode in the 40, driving in the same direction, is regular, but does not contain sufficient ore to value. In the 50, driving east of engine-shaft, the lode is small, and contains barytes. The lode in the 50, driving west of engine-shaft, is large, and produces 3/4 ton per fathom, and turns out saving work for the floors. In the 40, driving west of the engine-shaft, the lode is small, and contains barytes. In the 40, driving west of the engine-shaft, the lode is small, and contains barytes. In the 40, driving west of the engine-shaft, the lode is small, and contains barytes.

**HOOPER HILL.**—The manager, June 10, writes: The Gallimore 130 drifts, both north-east and south-west, have not been looking so well. The vein in the former is now improving, but in the latter the ground is much disturbed, and the vein broken up, pinched and poor. The tunnel has been driven 16 ft. in soft ground, past the place where the cross-cut is to start from and the latter will be commenced immediately.

**ISABELLE GOLD AND SILVER.**—The superintendent writes (June 9): Affairs are running quite smoothly here. I was at the mine the day before yesterday. They are taking out about the usual quantity of ore of good quality. Have sent forward 60 sacks of cement copper. Gr. as weight, 8640 lbs., average assay (a sample from each sack) 83.1-10th per cent. copper. Expect to melt bar No. 23 this afternoon, and will probably get the assay and weight in time to add to this in a P.M.—Have just melted and assayed bar No. 23, 1015 ozs. 695-1000 silver fine, which I send to the Carson Mint.

**KAPANGA.**—James Thomson, June 20, writes: Since my last we have crushed 40 tons of general lode stuff from Scotty's lode, yielding 43 ozs., and 30 lbs. of rich specimen yielding 60 ozs.; total, 100 ozs. 14 dwts. melted gold, giving a yield of 2 1/2 ozs. per ton of quartz. During the month our operations have been confined to the 50, on Scotty's lode, in consequence of not being able to fork the water at the 70—Kapanga lode—until the second boiler is completed, which is now in hand building in brickwork, and hope to have it finished and at work within a fortnight from date, when the men will also be at work again at the 70. The south face of No. 1 rise has been stopped 6 ft. high and 15 ft. long, which has produced the principal proportion of specimens, and the stuff crushed for the month; the lode is about 2 ft. wide, yielding at times rich specimens, and good crushing lode stuff. The north side of this rise has been stopped 5 ft. high and 15 ft. long; the lode here is of the same kindly description as it is in south face, producing strong blotches of gold in the stone; no rich specimens as yet have been obtained. The general lode stuff yields 3/4 oz per ton, showing the stopes as far as opened, for 30 ft. long, contains good crushing stuff. The south end from cross-cut has been further driven on the course of the lode 15 ft. total length to date, 60 ft. The lode here is 18 in. wide, consisting of a most congenial sand and loam, full of mud. Yesterday a nice compact concretion of quartz came in the end from 6 to 8 in. wide, showing nice blotches of rich gold, which is the continuation of the same run of gold as we are getting the south side of No. 1 rise. It is a most encouraging and important feature to find the gold so strong going south 60 ft. from No. 1 rise. I hope to have some good results from this end during next month. I am pleased to say the works underground and at surface are progressing steadily with dispatch, and our prospects daily improving at all points of operation.

**ROBINSON AND DONALDSON SILVER AND GOLD.**—The superintendent's report for the week ending June 3 states:—The shaft is down 210 1/2 ft., and yielding 1 ton of ore per fathom, the lode looking strong. The south drift from the shaft is in 123 ft., and the lode strong. No. 2 rise from the No. 2 tunnel is up 23 1/2 ft., and yielding 1 ton of ore per fathom, but not so open as last week. No. 2 winze from No. 2 tunnel is down 27 1/2 ft., yielding 1 ton of ore per fathom, and looking well. I forwarded for the month of May 18 tons 675 lbs. of concentrating ore, and 7 tons 1760 lbs. of stamp mill ore. The steam engine and boiler have been running steadily, and on completion drifts will be ing machinery are being raised in the shaft. Two additional locations, containing lodes considered to be extensions of the Donaldson veins, have been purchased for the Robinson Company. A trial test on one of the properties yielded 4 ozs. of gold to the ton, thus nearly approaching the Donaldson average. The main working tunnel, which it was intended to have made by a cross-cut at right angles to the ore vein, will now be started in one of the new mines on this lode, and may thus be run in ore till it reaches the Donaldson, through which it can be continued at a depth of about 1700 ft. below the outcrop of its ore vein. Such a tunnel will add greatly to the existing facilities for working the properties, and will probably repay its cost by the ore through which it will be run.

**LINARES.**—June 21: In the 115, driving east of Warner's engine-shaft, the lode is very open, containing a few spots of ore, but nothing to value. The lode in the 130, driving in the same direction, is large and strong, being now worth 3 tons per fathom. The 130, driving west of Warner's engine-shaft, continues unproductive. The lode in the 115, driving west of Warner's engine-shaft, has improved during the past fortnight, to 2 tons per fathom. The lode in the 130, driving west of Warner's engine-shaft, is small, containing a little ore, but not sufficient to value. In the same level, driving east of Pell's engine-shaft, the ground is hard for driving; lode small and poor. The lode in the 120, driving east of Pell's engine-shaft, has declined in value. In the 105, driving east of San Francisco shaft, the lode is compact and regular, and of a promising appearance, producing 1 ton of ore per fathom. The lode in the No. 243 winze, sinking below the 115, is large and strong, producing 2 tons per fathom. In No. 244 winze, sinking below the 105, the lode is compact and regular, containing a few spots of ore, and is going down in a good shoot of ore, valued at 2 tons per fathom. Quinten's Mine: In the 100, driving east of Taylor's engine-shaft, the ground is hard for driving, and the lode unproductive at present. The lode in the 90, driving in the same direction, continues large and strong, but has fallen off in value to 1 ton per fathom. Martinez winze, sinking below the 90, will be holed shortly to the 100; the lode is worth 3/4 ton per fathom. In Diego's winze, sinking below the 80, there is a large lode, yielding fine lumps of ore, worth 1 ton per fathom. Major's Mine: The lode in the 30, driving east of Enriquez's shaft, is moderately easy for driving through, but it does not contain any ore. In the 70, driving east of Santo Tomas's shaft, the ground is hard, and the lode disarranged and poor. The 70, driving east of San Francisco's engine-shaft, is opening up stopping ground valued at 1 ton per fathom. The lode in the 70 (No. 2 lode), driving in the same direction, has improved during the past fortnight to 1 ton of ore per fathom. Good progress is being made in Resolucion shaft sinking below the 60.

**NEBUDDA COAL AND IRON.**—J. A. Maughan, M.E.: In handing you my progress report for the month of May I regret that unforeseen circumstances have prevented the continued increase of quantity that I expected being realized for May. A fire broke out in our village at between 11 and 12 o'clock on the morning of May 3, and this has indirectly been the cause of the reduction of the output for the month. Nearly every house in the village was burnt to the ground, particulars of which have already been reported to you, the consequence of this being that instead of coming to their work as usual nearly all the workmen have been engaged rebuilding their houses. At any other time of year this, perhaps, might not have affected the work, as the men would have constructed their houses in their spare hours, but the near approach of the rains has naturally frightened them all, and they have to work hard at their huts, lest they should be left unprotected when the rain comes. I trust all stoppage to work on this account is nearly at an end, for in going round the new bazaar to-day I saw that most of the huts were about finished.—Output: The total output for the month amounts to 1385 tons 5 cwt. 2 qrs. 15 lbs., of which 1171 tons 2 qrs. 15 lbs. 215 cwt. 18 qrs. 15 lbs. colliery consumption. 2. No. 2 shaft: The whole output is still from this shaft workings.—Chargum District: In this district there are 39 working places. No. 1 south headways has been driven 12 yards during the month; No. 2 south headways, 14 yards; and the north headways, 11 yards. All the bords or east faces are looking as well as ever, and I have really nothing new to report, except the want of men to fill the places.—No. 1 South Level: In this district there are places for 40 hewers per shift daily, and the headways are getting away well, and consequently places are being opened up wherever there is a good shoot of coal, and the coal very good.—Labour: I have a clerk now in the Bengali district trying to procure contractors with plenty of men at their disposal, and I trust he will be successful. I have places in the 3 and 4 seam for about 20 men per shift.—Helen Pit: This pit has gone better this month, having gone over 20 ft. during the month, and it is now in red and purple clay, and the men are busy putting in a wedging crib again for another 32 ft. of walling. The total depth now is 130 ft.—Georgia Boring: This boring has gone 40 ft. during the month, making a total depth of 144 ft. from the surface, and the strata is post and has been all during the month in alternate beds of blue metal and post.—No. 2 Boring, Mulpa Plain: This boring has gone 30 ft. 2 in. during the month, and has reached a total depth of 235 ft. 2 in., and is in red and purple clay, but having been most part of the month in alternate beds of red and purple clay, and thin beds of conglomerate.—Engines and Boilers: All of these have undergone sundry repairs during the month, but are all in fair working order. The small Tansy special has been removed further into the workings during the month, and the place being made ready for the new big special underground is nearly completed and the rails laid into the place where it has to stand, and I expect to get the special into its place by about June 7 or 8. All the pipes for the special are laid in from the shaft close up to where the special will be. The big boiler for the 60-horse power engine at the new winning has been safely brought across the river and landed at the spot where it has to be built in to supply the new special with steam.—Buildings and Cottages: All buildings are under repair for the month. The roof of Mr. Tyler's house is on and plastering commenced inside.—Fitters: These have been chiefly engaged during the month in laying and fitting together the new special steam and water pipes from the shaft into the workings, and also in the general repairs to engines and the working specials and hand pumps.—Carpenters: Have been chiefly engaged during the month in making windows and doors for engineer's new house and for the same for the houses recently burnt down, and also on repairing the bridge.—Blacksmiths: Have been engaged on trams, sharpening sinking tools and picks, repairing the new big special underground, and also on repairing the bridge.—Ropes, Safety Valves, &c.: These are all in good working order.

**ORGANOS GOLD.**—Advices have been received from the manager, who reports:—The Constancia is turning out well, the Buenaventura level especially showing a very fine lode in the end worth 5 tons of mineral at, perhaps, 5 ozs. of gold sheet, 1265, 186, 6d.—Remarks: Only two engines working. The third engine stopped for repairs, and the new big special underground is nearly completed.

**TOLIMA.**—The advice by the mail of June 26 states that the April workings show a profit of 4832, 10s. 5d. The underground agent reports the expenditure of 92 ft. 9 in. of productive ground, and 82 ft. 8 in. of unproductive. The superintendent in charge reports that the smallness of the returns is due partly to the intervention of the Easter holidays, and partly to a diminution in the 60 fm. back stopes. At the latter date of May 17 the vein in the engine-shaft is reported to be improving, however, whilst in the 60 fm. east a branch of almost solid mineral is reported, yielding 300 ozs. of silver per ton. During the last month the engine shaftmen have been employed almost exclusively cutting the 70 fm. plant, consequently no sinking of importance has been done for the month. In consequence of the quickness of the water at Savandija Mine, and the heavy expense of keeping it out by hand, we have considered it advisable to suspend the sinking until the wheel is erected and connected with the pumps. Meanwhile the collar of the shaft is being raised, and the foundations for shaft-bob cleared out. The shaft is down 39 ft. under adit.

**UNITED MEXICAN.**—Mr. Hay, Guanajuato, May 26 and June 2, May 28: Mine of San Cayetano de la Ovigera: No change whatever has taken place in the head of the cross-cut of San Mateo, and, therefore, after having consulted Mr. Rocha I have suspended the further advance to the bajo. But as the five

costras we traversed some weeks ago showed good appearances of ore we have begun sinking a winze on the fourth and fifth costras last Monday. When the first holes were fired we discovered a new costra running nearly parallel with the cross-cut, natural underlay, and running about 15° to the west of north. Mr. Rocha is underground now, so that by next packet I shall be able to give you more trustworthy information on this subject. On the better west side this costra is 55 centimetres wide, 30 of which are in ore showing better appearances downwards and to the north-west. Some stones sent me yesterday morning pleased me much. On the south-east side the ore is fair, though far from being of the same quality as in the opposite direction; on the south-east side the costra is diminishing in breadth, it only measures 15 centimetres. In consequence of the old costras having joined the new one the fourth and fifth costras are no longer seen. I expect that some ore from this point will be sent to Duran this week. The only new feature observed in the end of the cross-cut of San Mateo is that the strip of quartz found continues, and that another was discovered this week running parallel to the former one, both in a northerly direction. In the end of San Juan west, cutting last week, no other change was noticed but that the cuerpo to the alto measured 3 metres, and the one to the bajo 75 centimetres. Since then I am happy to say that a remarkable change has taken place. We continue to drive on both lodes, and only last Saturday afternoon we struck ore in the cuerpo del bajo. This lode measures now 70 centimetres in width, 25 centimetres of which are in ore. One stone of those sent down to me as sample assayed marks 56.30 (about 308 ozs. per ton), with 8 ozs. of gold per marc; but as we advanced we found that there were three distinct classes of ore which the manager of the mine sent samples to be assayed in La Luz, which gave respectively marks 36.80 (about 193 ozs. per ton), marks 20 (110 ozs. per ton), and marks 6.40 (35 ozs. per ton) for the lowest class. Some small quantity of ore will probably be sent to Duran from this working to-day or to-morrow. The ley of the different sorts of ore is very good, but we must not expect to have anything like it as an average ley of the ore. What pleases me more than its richness is that it has been found at the level and in the continuation of the adit at (say) a depth of 192 metres below the mouth of San Agustín shaft.

These discoveries have encouraged me to adopt the new plan of working proposed by Mr. Rocha, though liable to be corrected after more mature study of the ground—to sink a vertical winze or shaft from the end of San Lazaro to the level of San Juan, from the bottom of which winze a cross-cut will be driven to the frente of San Juan. Particularly now, that ore has been found in the lowest level it is considered very necessary to give good ventilation to this section of the mine, the more so as we shall soon require the use of the ventilator in the winze we are sinking from San Mateo to San Antonio, and from thence to San Agustín shaft.

June 2: In the winze of San Mateo, contrary to expectations, the ore did not continue downwards, but rather took a nearly horizontal northerly direction, and on seeing this Mr. Rocha last Monday stopped the work in this winze, and had another sunk at the end of the cross-cut of San Mateo, where he thought it was more probable to find the six costras together; if ore is found as expected he will then decide on the course to be pursued. In the cross-cut of San Antonio, to the bajo, the strips of quartz are following each other as we advance. We have come on another 5 centimetres broad, natural inclination, with a northerly direction. This agglomeration of costras leads us to think that we cannot be far off the lode we have to cut, but hitherto we have found no certain sign of its proximity. We have begun sinking the winze of San Lazaro at the end of the level of that name; on May 27 we reached the depth of 90 centimetres. In the end of the frente San Juan, west, I am sorry to say that the ore has finished as abruptly as it began, and the end is now as barren as it was before the discovery of silver in this working. We continue, however, to drive in the same direction, and Mr. Rocha left instructions to follow the strip of ore downwards, upwards, and to the bajo. On this northern side he put two paid men to work, as downwards we had to give up the work de Contraleño. Since my last report the Cuerpo del Alto has decreased in width to 75 centimetres, and that of the bajo to 50 centimetres. Last week we sent to Duran three cargoes from San Juan and three cargoes from San Mateo.

## Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. CC.\*

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### SAFETY CAGES.

With the increasing demand for a larger output from a single shaft arose a considerable increase both in the speed and weight to be raised. This entails not only a greater thickness of the winding-up rope, owing to the increased weight; but also an increase in the factor of safety used in calculating the strength of the rope if a sufficient margin is to be allowed with the intention of avoiding a rupture of the rope in the case of sudden strain. This in the case of deep shafts leads, however, to an excessive thickness and weight of the winding rope, so that attention was soon directed to devising safety catches, which, in case of breakage of the rope, should fix the cage to the conductors in the shaft. When the rope breaks, and no such arrangement is provided, the cage and corf are smashed to pieces at the bottom of the shaft. This, however, is usually the least expense entailed, the destruction of the shaft timbering and the stoppage of work until the repairs are completed were the chief expenses, which such arrangements were intended to obviate. Where wire rope conductors are used these are only occasionally destroyed, and can soon be replaced, but even then humane considerations render it desirable to have some safety appliance. The conditions which a suitably constructed safety catch should fulfil have been summed up by Lottner as follows:—

- 1.—The arrangement should allow a winding speed of 25 ft. to 31 ft. per second with a weight of 3 tons attached to the rope.
- 2.—It should be so arranged as to be applicable to the ordinary forms of wood or wire rope conductors, and when these are of wood the toothed levers, or eccentrics, or wedges, or other gripping apparatus should grip each conductor on the two sides, and not on the face, as in the latter case the pressure tends to force the conductors apart or break them.
- 3.—The actuating mechanism should be of the simplest kind, and allow such an extent of movement that the gripping parts should come in contact supposing the conductors to be worn through in any case. This is of most importance where the conductors are formed of flat bar or angle iron, and consequently much thinner than wood conductors.
- 4.—The cage should, if possible, be caught without shock.
- 5.—The working of the catch should be entirely automatic, and only require oiling to keep it in order.
- 6.—The various parts of the arrangement should not be liable to be worn away during the winding operations, and when springs are used to actuate the mechanism these should only be brought into action in case of actual breakage of the rope; but under ordinary conditions they should be subject only to a constant and uniform pressure, and not be brought into action on landing the cage at the top or bottom of the shaft, or by a slackening or jerking of the rope during winding.
- 7.—India-rubber or similar elastic material should be avoided, as they cannot be depended upon to act properly after a considerable length of time.
- 8.—The safety arrangement must allow of a cover being placed on the top of the cage, to protect the miners in the cage from the falling rope or other material falling down the shaft.

The general arrangements or principle of safety catches may be described as follows:—The upper end of the frame of the cage is suspended from the winding rope by means of four coupling chains, one being attached to each corner. A fifth short coupling chain is attached at its upper end to the shackle of the winding rope, and at the lower end either directly or by means of a short rod to the spring which actuates the gripping parts. The whole weight of the cage is rarely entirely carried through the first-mentioned four coupling chains, but also partly by the fifth coupling chain, which is drawn tight, and partly compresses the spring before the first four coupling chains are drawn tight. The weight carried through the four coupling chains already mentioned is equal to the weight of the cage and contents, less the force measured by the compressive strain on the spring. When the winding rope suddenly breaks the spring is free to expand (or contract if the spring has previously been under a tensile strain), and act upon the gripping mechanism. In the best designed safety catches the spring merely brings the gripping parts into such a position that the weight of the cage itself acts through these, locking the cage against the conductors. The compression of the spring or the force with which the spring acts upon the gripping mechanism can be regulated by lengthening or shortening the fifth coupling chain (or rod) above mentioned. From what will be immediately said it will be evident that the gripping mechanism should act in the least possible time after (theoretically instantaneously with) the breaking of the rope. Heavy mechanism

will, therefore, require a more powerful spring or a greater compression of the spring. Not only is a lighter mechanism more suitable because it can be more rapidly brought into action, but the following consideration will show that with a heavy mechanism requiring a more powerful spring there will be a great liability of the mechanism coming into play without actual breakage of the rope. As we have above mentioned part of the weight of the cage is carried by the spring. When the cage is being raised from the bottom of the shaft the tension on the winding rope is greater than that actually measured by the weight of the cage by the force necessary to impart an acceleration of velocity to the cage. This extra tension is carried by the four coupling chains, which prevent a further compression of the spring. When the cage begins to descend, however, the tension on the winding rope is less than the actual weight of the cage by the force which would measure the acceleration of the velocity of descent. If the acceleration is great the tension on the winding rope might fall below that of the compressed spring, when the latter would distend or expand till the compression strain of the spring was equal to the tension in the rope. The expansion of the spring would move the gripping parts to a corresponding extent, and this might be sufficient to cause it to lock the cage to the conductors. As the spring cannot expand till the tension of the winding rope falls as low as the compressive strain of the spring it will be evident that the smaller the latter so much the greater must be the acceleration of descent before the gripping parts are brought into operation. Theoretically, then, the compression of the spring ought to be less during the descent than during the ascent.

If the rope breaks during the ascent the cage will continue to move upwards till its *vis viva* is overcome by gravitation. During this time the spring, however, has begun to extend, and the time may be sufficient to push the gripping parts out so far that they are in position to lock the cage immediately the commencement of the descent brings the weight of the cage to act on the gripping mechanism. If, as is rarely the case, the force of the spring is sufficiently great the cage may be stopped and locked during its ascent. The velocity of ascent may, lastly, be so slow that the spring has not time to push the gripping mechanism out so far as to lock the cage before the latter has begun its descent, when the cage will be brought to a standstill with a sudden jerk.

If the rope breaks during the descent the cage has already a downward velocity, which will be increased according to the time required by the spring to expand so far as to bring the gripping mechanism into position to lock the cage. The cage will then be brought to a standstill with a considerable shock. This increased velocity is advantageous inasmuch that it causes the gripping mechanism to lock the cage more firmly to the conductors; it may, however, on the other hand, be so great as to destroy the conductors or damage the gripping mechanism to such an extent that it fails to retain its hold on the conductors.

The time required by the spring to bring the gripping mechanism into position to lock the cage may be reduced by designing the mechanism in such a manner that the gripping parts have a considerable movement for a small extension of the spring. This, however, would entail the disadvantage that the gripping mechanism might be brought into play without actual rupture of the rope should the latter become slack. This latter disadvantage may be obviated by giving more play between the gripping parts and the conductors; but the first disadvantage would then arise—that a greater time might have to elapse between the breakage of the rope and the stoppage of the cage, when the latter would be brought up with a sudden jerk. This shock, however, as above mentioned, is not disadvantageous if it is not so great as to destroy the conductors or gripping mechanism, or to throw the men out of the cage.

The spring is brought into action when the cage is brought to rest on the fallers at the pit-bank or at the bottom of the shaft; but the cage is not locked to the conductors, since it is necessary that the weight of the cage should be brought into play to force the gripping parts against the conductors. In some cases the spring is sufficiently strong to do this when the conductors are rapidly worn away at these places, and they then will require frequent renewal.

The various forms of safety catches may be placed under the following six classes, which will be described in the order here given:—

- (a).—Safety catches with bolts which are shot into holes or against projections in specially constructed guides (represented by Büttgenbach's safety catch).
- (b).—Safety catches with gripping levers (represented by Fontaine's safety catch).
- (c).—Safety catches with wedges (represented by Fourdrinier's safety catch).
- (d).—Safety catches with eccentrics (represented by White and Grant's safety catch).
- (e).—Safety catches for iron guides.
- (f).—Safety catches for wire rope conductors (represented by King's safety catch).

(a).—Büttgenbach's safety catch. With this arrangement the upper frame of the cage is attached to the winding rope by means of four coupling chains. The shackle on the winding rope is also attached by a short vertical chain to a short vertical rod, which passes through the centre of the upper frame of the cage. A collar or nut is provided on the lower end of this rod, between which and the top frame of the cage two carriage springs, or a carriage spring and a spiral spring, are inserted. There appears to be no valid reason for the use of two springs, instead of one constructed to give an expansion equal to the sum of that obtained from two springs. When the four coupling chains are drawn tight the springs are compressed. The amount of compression can be adjusted by screwing round the nut on the rod. The top of this rod is connected by two links to two bolts, one on each side of the cage, which slide in suitable bearings. Should the rope break, the springs are free to expand, and draw down the rod which brings down the upper end of the links, and forces the bolts outwards. The bolts catch in notches cut on the inner faces of the conductors every 18 in. apart. The cage is guided either by rollers, two of which run on the sides of each conductor, or by ordinary guides of [section, which, however, should be so long as to more than completely cover the notches or recesses. In some cases two sets of conductors are placed on each side of the cage, about 6 in. apart, and are connected by iron bolts about 12 to 18 in. apart, against which the sliding bolts of the cage catch. A very neat arrangement of the springs for actuating the mechanism of Büttgenbach's safety catch is shown in Lottner-Serlo's Manual of Mining. An ordinary wagon spring is inserted between the collar on the vertical rod and the top frame of the cage. The ends of a flat bow spring are connected with the two sliding bolts, and tend to press these outwards. The advantage of this arrangement is that the force of one spring acts directly in the line of motion of the sliding bolts. The weight of Büttgenbach's safety catch is about 1.5 that of the empty cage and 1.12 of the cage and loaded cove. Mueseler arranges the bolts with two projections about 12 to 18 in. apart, so that the notches in the conductors only require to be 2 ft. to 3 ft. apart. Turner, Grey, and Breydon employ toothed claws in place of the simple sliding bolt, which catch against toothed plates fixed to the conductors.

The disadvantage of all these arrangements lies in the fact that the cage has generally some distance to fall before the bolts come in contact with the recesses or notches, and this distance will increase with the distance at which the notches are placed apart. The nearer the notches are placed together so much the greater will be the increase in the cost of fitting up the conductors. In any case the cage will be brought to a standstill with a more or less sudden jerk.

The Newport Abercane Black Vein Steam Coal Company accounts to March 31 have been placed before the directors, and they recommend, subject to audit, a dividend of the rate of 7 per cent. on the Ordinary shares, making, with the amount paid in January, 10 per cent. for the year, and on the Preference a dividend at the rate of 10 per cent. per annum, besides placing 3333. 9s. 9d. to the credit of the Reserve and other funds and carrying forward a balance of 9147. 1s. 3d.

The National Standard Land Mortgage and Investment Company (Limited) notify the payment on July 1 of the interest coupons on the debentures by Messrs. Brown, Janson, and Co.

\* Being Notes on a Course of Lectures on Mining, delivered by Herr Berggrath Dr. VON GROSSECK, Director of the Royal Bergakademie, Clausthal, the Harz, North Germany.



BRITISH MINES.

—T. Mitchell, June 29: The 90 west on No. 2 continues much the same as at the setting day, excepting that a little more sulphur has made its appearance. The 90 east on No. 2 is producing stones of copper ore and sulphur. The rise in back of the 90 has improved a little this last day or so, and the ore is of a better quality. Our sampling this week consists of three parcels of copper ore, computed 400 tons.

**PATERSYNE AND CLARGILL HEAD.**—J. Peart, June 22: Top Level: The bottom is raising a little ore; nice looking vein, and from appearances we may soon have a change for the better. The north end has improved; there is a fine vein 4 ft. wide, mixed with good pieces of solid ore, and when worked makes very nice bowse. At this point we have put a hole to the surface and



ventilated the same.—Low Level: We have got through the difficult ground in the level; it is still very much broken down, but as it is at present we can make fair good progress. We are dressing up this ore, and in another week or two will have it ready for market.

**FEENHALLS.**—S. Bennett, J. Goyne, June 24: The lode in the 80 west end boundary is 1½ ft. wide, somewhat unsettled and not of much value. In the 70 east end it is small and poor. The north lode in the 60 north cross-cut is 1½ ft. wide, of a promising appearance, and containing some good spots of tin. The winze below the 55 is worth 20¢ per fathom. The 42 west end on the north lode is worth 12¢ per fathom, and the winze below the 30 10¢ per fathom.

—S. Bennett, J. Goyne, June 28: The lode in the 80, west end from boundary, continues to produce some low quality tin, but not to value. The 70 east end is poor, the lode being near a gossan in an unsettled state. The north lode in the 60 is improving as it leaves the cross-course, is 1½ ft. wide, and contains some good spots of tin. The winze below the 55 is worth 20¢ per fathom. The 42 west end on the north lode is worth 12¢ per fathom, and the winze below the 30 10¢ per fathom.

**PIONEER.**—June 27: Silver-Lead Mines, Holywell: Beale's Shaft: Since last report little has been done in driving the 40 north, the men having been shifted to rise in the roof at the junction of the north and south with an east and west lode. They have struck into some good paying lead, which today shows every appearance of improving. The tribute pitches have improved since last report. While down this morning in company with Mr. E. S. Haymen, the secretary to the company, we took out some fine stones of ore, and left equally good in sight.—Engine-Shaft: Towards the end of last week we met with a fall from roof in the place where we had started to drive in a south-easterly direction. We have to-day cleared this off, and restarted working on the ore, which holds out well; nice stones of ore were wound up to-day in Mr. Haymen's presence, and more left in sight underground. The 35 east continues the same as last reported, with every indication of a further early improvement. This level has now been driven 15 yards from shaft, so that it cannot be long now before we intersect one of the junctions of the three north and south lodes before us, and where lead will, undoubtedly, be found in large quantities.—Dressing Floors: Washing and dressing is being pushed forward as rapidly as possible, and our parcel of ore will be ready for sale next week.

**POLROSE.**—W. Bennett, June 28: There is no particular change in the shaft sinking below the 100, which is now about 4 fathoms below the level. There is still a small horse of killas between the lode and the south branch in the western part of the shaft. The lode is about 3½ ft. wide, showing a little tin, and there is more spar coming into the lode, which I look upon as a favourable indication. The sump winze is sunk 7 ft. below the 100. The lode is about 2 ft. wide, very strong with muddle, and containing a little tin.—Saving Work: We are pushing on these points as fast as the nature of the work will admit.

**PRINCE OF WALES.**—S. Roberts, G. Rowe, June 28: We have no change to mention in sinking Watson's engine-shaft. In the 102 east there is no lode taken down since last week. The ground in this end appears to be a little stiffer for driving, but of an improved nature for production. The lode in the 120 west is nearly 2 ft. wide, producing a little tin, and water issuing freely from it, which we think is a good indication. In the 90 west the lode has improved during the past week, both in size and character. The lode in the stope in back of this end is 5 ft. wide, worth 8¢ for tin and 3¢ for copper ore per fm. In the 90 east the men are still engaged in blasting down the lode, which is 3 ft. wide, worth 6¢ per fm. for tin, and very rich stones of copper ore. The lode in No. 1 stope, in back of this level, is 4½ ft. wide, worth 8¢ per fm. for tin. In Nos. 2 and 3 stopes the men are uncovering the lode, consequently nothing new here to report. The lode in No. 4 stope is 3 ft. wide, worth 9¢ per fm. for tin and copper ore.—Good Luck: In the stope in back of the 28 the lode is 4½ ft. wide, worth 7¢ per fm. for tin.

**ROMAN GRAVELS.**—Arthur Waters and Son, June 29: The 125 north is in a strong wide lode, yielding stones of lead ore. The lode in said level, south of new shaft, is small and at present not to value. The 110, north of old shaft, is worth 10 cwt. of lead ore per fathom. The 110, south of new shaft, is worth 1½ ton per fathom, and the lode looks likely to improve shortly. The 95 south is opening out again, now worth 1 ton per fathom and daily improving. The winze below the 95, north of new shaft, is 9 fms. deep, lode worth 1½ ton per fathom. The 80, south of new shaft, is worth 4½ tons per fathom, lode improving as we go forward. The 65 south, on Big Spar lode, is worth 10 cwt. per fathom. The east part of the lode, by one side here to come down in course, is worth 1 ton per fathom. There are 25 stopes throughout the mine worth together 52 tons of lead ore per fathom. We are pushing on with the masonry for new engines and compressors, as well as making additions to our new slime dressing floors.

**RUSSELL UNITED.**—John Bray, June 29: The lode in the 97 fm. level, east of Matthew's shaft, is 4 ft. wide, composed of capel, quartz, muddle, spotted with copper ore; this level is now getting under the ore ground that we had in the levels above, and from the present appearance we may expect something good shortly. The ground in the cross-cut north, towards the great north lode, continues much as when last reported. No improvement in the 55 fm. level this week. At Stephen's shaft our sinking has been hindered by a large flooken, which we are endeavouring to remove by heavy and very heavy work. We have been putting in extra timber to keep the shaft secure. This flooken resembles the same character as that at East Wheel Russell at 30 fms. deep, and after passing through it, met with good discovery of grey and yellow copper ore, and we may fairly expect the same results at Stephen's shaft when we get under this flooken, which the men are working at with all possible speed.

**SILVER HILL.**—G. Rickard, June 29: We continue to pass on with the driving of the tunnel cross-cutting the good looking ground as we cut through the level of the tunnel. Good faces of muddle and yellow copper are to be seen in many of the heads and joints, which I deem a favourable indication for finding a productive lode when reached.—Wheel Brothers Lode: In driving east from tunnel the lode is much the same in size and appearance as last week, but without any visible spots of silver. I am inclined to think there is another part of the lode standing to the south of the present drive, and I have put the men to cut into that direction for ascertaining or proving the same.

**SORTRIDGE COPPER.**—W. Skeewis, June 29: The lode in the stope in back of the 30, east of cross-cut, is of the same value as when last reported—10¢ per fathom. In the eastern end of this level the lode is thrown south. The men have been driving in that direction during the past week, and we have now cut the north wall of the lode again. In the deep adit the men are making good progress, and are within 80 fms. of the engine-shaft, where the water has gone down 1 ft. 3 in. since last Friday, and we are expecting to increase its speed daily. The men are getting on well with the 60 ft. wheel-pit, and if the weather be fine they expect to finish by the end of next week, in which case we shall proceed at once to erect the wheel.

**SOUTH CONDURROW.**—Wm. Rich, Wm. Williams, H. King, June 28: The 93 east of King's is unproductive. The lode in the bottom of the 80 east and ahead of the 93 east is worth 15¢ per fathom. The lode in the back of the 80 east is worth 12¢ per fathom. We are sinking a winze in the 70 east, and hope soon to communicate with the rise in the back of the 80, which will give good ventilation. We are making fairly good progress in the rise in the back of the 70 towards Marshall's shaft. The winze in the bottom of the 60, east of King's, is worth 20¢ per fathom. The 60 east, east of Plantation shaft, is worth 7¢ per fathom. The 50 east, east of King's, is worth 8¢ per fathom. The stope in the back of this level is worth 12¢ per fathom. The 40 east yields low quality tinstone. The stope below this level is worth 12¢ per fathom. The 30 east, west of engine-shaft, is worth 8¢ per fathom. The rise in the back of this level is worth 15¢ per fathom. We are driving west from the cross-course, and at the top of this rise with the view to drain the old 20 cross-cut, north of the shaft, which has been dammed up and is full of debris and water from the effects of a run in the mine some 10 years ago. There is nothing very new at Marshall's. We are busy engaged in cutting pit and sinking for skip pits, preparatory to sinking this shaft below the 60, which we shall urge on as quickly as possible.

**SOUTH DARREN.**—Henry James, June 29: The lode in the 110 east and 120 west is looking very well; the former is worth 1½ ton and the latter 2½ tons of silver-lead ore per fm. All other points of operation continue much the same as last week. We sampled on Saturday 45 tons of silver-lead ore, for sale on July 7.

**SOUTH DEVON UNITED.**—Wm. Hooper, June 29: The 110, east of Brook's engine-shaft, is not through the cross-course as yet. Should it prove as wide as at the 130 we expect to drive some 4 to 6 ft. further before again intersecting the lode; the end is letting out water freely, which we consider a good indication of the lode being near. The stope in the back of the above are without any particular change since last report. The 100, east of Brook's engine-shaft, is again being driven by two men, at 5½ ft. per fathom; the lode is 4 ft. wide, producing muddle and stones of copper ore. There is no particular change in the appearance of the end, it being about the same in character as for some time past. In the rise against Martin's shaft, in the back of the 90, the lode is 4½ ft. wide, of a promising character, containing capel, quartz, muddle, and good stones of copper ore. In the 80, east of Brook's engine-shaft, the lode is 4 ft. wide, producing in places stones of ore; the ground still continues much the same as when last reported. Nos. 1, 2, 3, and 4 stopes in the back of this level are worth respectively 7¢, 8¢, 1¢, and 6¢ per fathom.—Pickstone's Shaft: On Sunday last we had an accident here, the connecting loop of the rod at the Kingpost having broken, consequently by the time the breakage was repaired the water had risen many fathoms in the shaft, however I am pleased to say it is again in fork.—Martin's Shaft: The men are making fair progress in sinking the above, now down 40 fms. 3 ft. Our computed quantity of 330 tons weighed off 339 tons 7 cwt. 2 qrs.

**SOUTH TOLCARN.**—Thomas Angove, Samuel Arthur, June 28: The lode in the engine-shaft is about 6 ft. wide, and worth 15¢ per fathom. In the 60 west the lode is 6 ft. wide, driving at 52s. 6d. per fathom; worth 12¢ per fathom. In the 60 east the lode is 6 ft. wide, driving at 100s. per fathom; worth 8¢ per fathom. In the 50 east end the lode is 4 ft. wide, driving at 60s. per fm.; worth 6¢ per fathom. In the 50 west end the lode is 5 ft. wide, driving at 70s. per fathom; worth 6¢ per fathom. The roof is on the stamping-engine house. The erecting of engine will commence next week. The stamps flooring is fairly progressing.

**TANKERVILLE GREAT CONSOLS.**—A. Waters and Son, June 29: Bog Mine: The water is 8 ft. below the 140, engine and pitwork doing good duty. The bucket lift is low enough to drain the 163, and when this is dry our way to the 175, or bottom level, will be an easy matter, the workings there being comparatively of limited extent. The 143 north-east, on side lode, is opening out, south of Bunting's shaft, towards hanging-wall part of middle lode, will, it is calculated, reach the object in about 3 fathoms driving, when a good run of blende ground will be opened up. The Boat level, east of Bunting's, on middle lode, shows a vein charged with calc spar, sulphate of barytes, stones of lead ore, blende, and muddle, the country rock being of a hard character. The tribute department (21 pitches by four men) is yielding lead ore and blende just as secured to the west end; we hope to increase our returns as soon as the 143 is cleared and secured to the west end; the 120 west, on Warm Water lode, is worth 1 ton lead ore per fathom. The pitch in the 120 east, on Big Ore lode is worth 1 ton per fathom. The 80 west on Warm Water lode is worth 1 ton per fathom. The pitch in this level, following the end, 6 fathoms in length, is worth ¾ ton per fathom; No. 2 pitch worth ¾ ton, and No. 3 pitch worth 10 cwt. per fathom. The 80 east, on Warm Water, shows a lode 3 ft. wide, good looking spar with stones of lead ore. The 80 east, on Big Ore is yielding stones of ore, but not to value at present. Pitch in this level east is worth ¾ ton per fathom. The rise in 80 west is worth 5 cwt. per fathom; the said rise is communicated by borer hole to

the old workings from the 40, and we hope to have some good pitches in this ground shortly. Pitch in bottom of 40 west is worth ¾ ton per fathom. The two pitches in back of this level are worth 1½ ton per fathom.—Potter's Pit: The 35 west, west of shaft is down 3 fathoms, lode broken up by the filling matter being loose rocks and stones of slate, with rocks and stones of nearly solid lead ore, pieces of copper ore, muddle, &c., what we call a regular jumble of stuff. No. 2 winze below said level, close up to the west end of the working, is also down 3 fathoms; lode more compact than elsewhere, and worth 1 ton per fathom. We think there is more lode standing to the north of No. 2 winze, and the men are preparing to prove the sides before going deeper. The heat in both winzes to-day is more intense than ever. The 91 cross-cut south has not yet reached any lode of consequence. The pitch in the 45 west is worth 1 ton lead ore per fathom.—Tankerville No. 1 North Lode: Watson's shaft is 11½ fathoms below the 220, lode in the bottom as seen is 5 ft. wide, calc spar, with lead ore and blende, worth 1 ton per fathom. The tribute stope in the 220 east and west of shaft are worth 2½ tons per fathom. In the 206 west we are preparing to sink a winze in the ore ground. The 192 west shows a lode 4 to 5 ft. wide, calc spar, with 15 cwt. of lead ore per fathom, intermixed with blende stuff. All other places without change since last reported on.

**THE VAUNCE UNITED.**—W. Vivian, June 29: The ground in the cross-driving shaft of the middle shaft is more favourable for driving. I consider we have 6 or 8 fms. more to drive to 1-terrace the lode at this point. The lode in the 55 driving east on the north lode is about 2 ft. wide, producing a little tin, with every appearance of further improvement.

**VAN CONSOLS AND GLYN.**—J. Roach, D. Douglas, June 28: There is no change in the 70, west of Murray's shaft, since reported on the 21st inst. Rise and stope above this level is still producing lead in sufficient quantities to pass through the dressing machinery. Level driving east of rise, above 50, on south part of lode, is yielding 10 cwt. of lead per fathom. Level driving east from No. 1 stope, at 40, on south side of lode, is producing 18 cwt. of lead per fm., and bears indication of further improvement. We are still cutting down lode in western part of No. 1 stope, which contains various branches of lead, but fluctuating in quantities. No. 2 stope is without material alteration since last advice. We cannot speak of any particular alteration having secured the 50 west of Gundry's shaft, on north part of lode as before stated, a sudden and favourable change may be daily expected. If the board think it desirable we can sample a parcel of lead ore on Monday next.

**WEST CARADON.**—S. Richards, June 28: After clearing and securing the rise from the 38 to the 27, on Taylor's lode, we have had a general survey of these levels, and find we shall have to drive near 12 fathoms to reach the western level on Taylor's lode, at the 27, consequently we have decided on putting up a rise in the back of the 38. We shall continue this rise for some distance before we do anything more at the 27; this, I think, will be the quickest and cheapest way of proving this lode about those points. The lode in the rise now yielding 1½ ton of copper ore per fathom. Gilpin's lode at this or the 38, driving west, is main cross-course, is without change to notice; this lode in the adit level driving west of cross-course is producing stones of ore, and has altogether a very promising appearance. Rise in the back of this level will produce fully 1 ton of good ore per fathom. The lode in the rise in the back of the 38, on Vivian's lode, is further improved, and will now yield from 2 to 2½ tons of copper ore per fathom. The other points on this and the 50, on this lode, are producing quite as much ore as when reported on last week. The lode in the new shaft being sunk in Western Gonnema is over 4 ft. wide, and a more promising looking lode so near the surface I have not seen in this or any other district; the shaft now being sunk for 6½ ton per fathom, and the men earning fair wages.

**WEST CREBOR.**—J. Andrews, June 28: There is no change in the mine since I wrote you on Friday, as no lode has been taken down in either of the ends since, nor shall we take any more lode down in either of the ends for a week or 10 days, but when next taken down in the west end I feel sanguine there will be a further improvement. I hope the two ends will be sufficiently advanced so as to be able to resume the sinking of the shaft in a fortnight from this time.

**WEST GREAT CONSOLS.**—G. Rowe, June 28: Our progress in sinking the engine-shaft below the 30 is satisfactory, and the lode is of the same kindly description for the production of copper ore as stated in our former reports, and the stratification everything that can be desired.

**WEST GODOLPHIN.**—T. Hodge, F. Hodge, June 29: The 70 west is letting out much water, and draining the levels above. We consider this a good indication, and believe we shall be on a run of tin soon. The lode is worth 7¢ per fathom. The 50 west has improved in appearance, and worth 8¢ per fathom. The 50 east, below this end is worth 15¢ per fathom. No other change.

**WEST KITTY.**—W. Vivian, June 29: The 80 fm. level driving east; lode worth 25¢ per fathom. The 72 fm. level, driving east, lode worth 8¢ per fathom. Stope in the back, lode worth 35¢ per fathom. Rise in the back of 72 fm. level west, lode worth 8¢ per fathom. Rise in the back of 60 fm. level, lode worth 20¢ per fathom.

**WEST PATLEY BRIDGE.**—David Williams, June 29: The vein in the rise in back of the 55 is 2½ ft. wide, and producing 15 cwt. of lead ore per fathom. The lode in the north cross-cut from the 20 is producing good saving work for dressing. We have a pitch in back of the 20 wrought at 100s. per ton of dressed ore.

**WEST POLBRENN.**—W. Vivian, June 29: There is no change to notice since last report. A full report will be given at the meeting next week.

**WEST VOR AND LEEDS.**—S. Harris, June 30: The winze sinking below the adit level on the Sosen lode is down 4 ft.; the lode is 4 ft. wide, producing tin, copper, and a large quantity of muddle, which will no doubt in depth give place to tin as it nears the intersection of the lodes, &c.

**WEST WHEAL TOLGUS.**—W. White, J. Pryor, June 29: The shaftmen are making very fair progress in sinking the engine-shaft below the 48, now down between 3 and 4 fms. The whole lift to the 60 being set as a certain bargain this will be completed with all speed. The main winze in bottom of the 48 is also set as a certain bargain, to be sunk to the 60, at 8¢ per fathom. We hope to get this down in another four weeks. We are opening up good ground here, and the lode appears to improve in size and quality as we go down. Lode is worth 25¢ per fathom. The 48, to drive west, at 7¢ per fathom. The lode in this end is opening out again, and this end made a produce of 1½ cwt. per ton; the lode is worth 18¢ per fathom. Four stopes are working at the 48; the lode worth, on an average, 15¢ per fathom. The very rich lode we have in bottom of the 48, west of the main winze, still holds good, and is producing some very rich tin stuff. We have not yet cut the lode west of Shanger's cross-course at the 36, but our opinion respecting it is most favourable, and we feel quite assured of meeting with a productive lode. The stopes working in back of this level is producing fair quality work for tin, which is being sent to the surface, and the men are pushing on the work as fast as possible. The masons are now building the flues of the calciner, and the carpenters are busy erecting the tynard shed and biddles, &c., consequently we hope in about another two months to be treating the whole of our tin stuff on the mine. We have the additional 16 heads of stamps ready for working, making 32 altogether in full working order; and the whole of the machinery throughout the mine is looking well. We had a sale of 115 tons of tin stuff on Thursday last, which realised 347£. and we intend having another again next week. We consider the prospects of the mine to be very good.

**WHEAL TOLGUS.**—John Gilbert, June 29: The lode in the 105, west of Richards' shaft, is 5 ft. wide, and still yielding 4 tons of copper ore per fm., and looking very promising to continue, but it is ugly, and consequently troublesome for driving. There is no change in the 95 cross-cut driving north. We have put these men for a few days to alter some pitwork at Taylor's engine-shaft. We have suspended the rise in back of the 95 until we put in an air-machine to improve the ventilation. The lode in the 85, west of shaft, is 2½ ft. wide, composed of peach, muddle, and stones of copper ore, and looking kindly. The stope is looking well the same as when last reported.

**WHEAL COATES.**—Wm. Vivian, June 29: In the cross-cut driving at the 80, south of engine-shaft, there is no change to notice since last report. The 80, driving west on the south lode, is worth 7¢ per fathom. In the 70, driving east, the lode is worth 9¢ per fathom. In the 70, driving west, the lode is producing a little tin, but not to value. In the 60, driving west, the lode is worth 7¢ per fathom. In the 50, driving east, the lode is worth 8¢ per fathom. In the 20, driving east, the lode is worth 7¢ per fathom. We have 50 men working 13 tribute pits, which are producing their usual quantity of tin.

**WHEAL CREBOR.**—G. Rowe, H. Phillips, June 27: The lode in the 132, east of the new shaft, is 3 ft. wide, producing stones of muddle and ore. The 132 cross-cut south and west of the said shaft has passed through several small branches of spar, and capels, spotted with muddle, and good quality copper ore, but not cut through. The lode in the No. 1 winze, sinking below the 120, west of shaft, is 4 ft. wide, worth 20¢ per fathom. The lode in the south part of the lode, 6 ft. wide, improving, worth 70s. per fathom. The lode in the 180 east is small and unproductive. The 108 cross-cut north is extended 37 fms. 3 ft.; the ground is without change. The lode in the stope, in the bottom of the 108, is worth 25¢ per fathom. The lode in the 96, west of new shaft, is producing good stones of ore. The lode in No. 1 stope, in the back of the 96, is worth 12¢ per fathom. No. 2 and 3 stopes, in the back of the same level, 96, is worth 25¢ each. The lode going up in the rise above the 96 is worth 30¢ per fathom. The lode in the 40 east is worth 10¢ per fathom.

**WHEAL GEORGE.**—Clas. Kneebone, June 29: In the adit driving north of Coed Mawr level we have during the past week gone through an east and west joint, yielding lead ore in small quantities, but not sufficient has been done to give us an idea of its value. I have applied for permission to open the Roman level, which will unwater our workings 10 or 11 fms. deeper, where we have reason to expect the graphite much purer and the lead ore to increase in value. You are aware we had a splendid discovery of lead in the No. 1 winze, on the No. 1 east and west level, and if this bit is opened 11 fms. deeper I expect to cut into a highly profitable lode for both mines.

**WHEAL GRENVILLE.**—T. Hodge, June 28: Gool's shaft is about 9 feet below the 190, going east in the country rock south of lode. The 190 east end is going out on the north part of the lode, producing stamping work. The main part of the lode is standing south. The 178 east is worth 12¢ per fathom, for the part carried. The stope in back of said level is worth 20¢ per fathom. The 165 west produces stamping work. The 150 east is worth 12¢ per fathom. The 140 east is worth 10¢ per fathom. The 120, west of the western shaft, is worth 10¢ per fathom. No other change.

**WHEAL UNY.**—Wm. Hamby, Wm. Prophet, Jas. White, June 29: We are urging on the sinking of Hind's engine-shaft below the 182, and now down 2 fms. below the above point. Also good progress is being made in driving the 182 ends east and west of shaft; the western end is producing saving work for tin. In the eastern end we are expecting daily to cut the cross-course, east of which we believe the tin gone down in the level above will be met with. The 172 east is worth 12¢ per fathom. The 172 west is worth 18¢ per fathom. The stope throughout the mine are yielding their usual quantity and quality of stuff. All the machinery is working well.

From Mr. JOHN B. REYNOLDS:—We regret to have to confirm the statements which have been made in the daily papers that the markets have been in an exceedingly unsatisfactory condition all round. The fall in the prices of railway stocks, foreign, and other securities has, in many instances, been serious, and such as to cause grave anxiety. It is unfortunate that there are so many who appear to live merely by speculation, and it is perfectly natural that when a panic takes place such parties have nothing wherewith to meet their differences. These men are encouraged by brokers who have little regard for their own security, or for the

security of those with whom they deal. Time bargains never intended to be carried to legitimate conclusion cause momentary activity, but very often result in something worse than loss of money. The markets cannot permanently recover until such speculative accounts are closed, and weak men must go to the wall and suffer for their imprudence. The present time no doubt is exceptionally favourable for parties having money lying idle at their bankers. It is difficult to mention any desirable security which cannot now be bought on very advantageous terms. The Egyptian crisis is, of course, magnified by those whose interests are favourably affected by the exaggeration of the difficulty; but it is absurd to suppose for a moment that the consequences will be so serious even in the immediate future as many would have us believe. Most of us who have had long experience in business life, particularly in the City of London, look with equanimity on periods like the present, remembering that the outcome of all such trouble does not in the long run at all interfere with the legitimate investor. It is pleasing to note the satisfactory railway traffic returns, and the improved condition of the tin market is also a matter for considerable congratulation in mining circles. Indeed, the mining industry is so very important that any improvement in that direction should be hailed with satisfaction by all classes of the community. We are, therefore, glad to record our opinion that no companies are more honestly and ably managed than our leading Cornish mines. We have good reason to believe that the autumn will bring with it signs of increasing activity, so that those holding good stocks, and who can afford to hold them, should take their holiday as soon as they can, and prepare for the good times which, we hope, are not far off. It is our custom to wish our readers a merry Christmas. Why should we not, at this period of the year, wish them a merry holiday?

## MINING ON THE GOLD COAST

The attention recently directed to the auriferous deposits of the Gold Coast has led to the formation of numerous companies for developing them, and already about 500,000£. has been raised, and over 250,000£. has been paid to vendors for the properties, seven in number, which have been transferred. The African Gold Coast Syndicate, with a capital of 45,000£., in shares of 10£. each, has now issued its prospectus, which will be found in another column, the intention being to develop the Ingotrow concession, the lease of which is acquired by the company for 40,000£., leaving 5000£. working capital. The purchase includes the lease, dated June 8, 1881, from Kwacoe Appoh, the chief of the district, with all powers possessed by the vendor for working the same, and all the interest in the said property granted by the above lease, to sell sub-concessions from time to time as may be deemed advisable, or to form companies for the purpose of working same for gold mining and other purposes. It is not proposed that the Syndicate shall work any portion of the property. The area of the property is about ten times that of any existing Gold Coast Mining Company, quite as auriferous, probably, as the best of them, and what is of great importance, is considerably nearer the coast than any of the existing companies' property. The Syndicate, therefore, purpose dividing the property into sections, and disposing of same to ten or more companies, each of which would possess a property equal to that sold to one of the companies already on the market for 75,000£.

In a detailed report upon the property Mr. R. B. N. Walker says that the concession measures 6000 yards square, or 3000 yards to the north, south, east, and west respectively of the central shaft (marked K on the plan), and, therefore, comprises upwards of 10 square statute miles of land. The centre of the property lies about three miles N.N.W. from the junction of the small stream called the Nanauh with the large river Ankobra, which receives the drainage of all this vast gold-bearing region, and forms the principal highway to the various gold mines near Taquah, now being worked by European companies. The Ankobra is deep, and is navigable by large boats and steam launches for a distance of nearly 60 miles from its mouth, but from which the outlet of the Nanauh is barely nine miles distant, whilst the centre of the property is not more than six miles in a direct line from the sea. The Port of Axim, which is at present the point of debarkation from all the mines, is less than four miles from the Ankobra, consequently the whole distance to be covered in transporting machinery, &c., to the centre of the Ingotrow property does not exceed 16 miles, of which more than half is water carriage. During the dry season, which may be roughly taken at half the year, goods could be conveyed by boat or steam launch from alongside the mail steamer off Axim, direct to the landing-place near the mouth of the Nanauh, thus reducing the actual land transport to three miles, over which distance a tramway could be laid as soon as active operations commenced. This proximity of the Ingotrow property to the sea, and to the nearest port of call for steamers, affords quite exceptional facilities for the carriage of machinery and necessaries to the mine, or rather mines, to be found within the limits of the concession, as well as for the shipment of gold when extracted, or even the ore itself, when reduced in bulk by crushing and rough washing on the spot.

These favourable opinions are fully confirmed by Capt. Henry Hoskings, who reports that 6000 yards square is a very large piece of land, and when covered with dense forest, as the Ingotrow property is, prospecting becomes both difficult and tiresome, but sufficient has been done to know that a number of rich auriferous parallel reefs run right through the property, thus demonstrating its great value. The alluvial above these reefs is all auriferous, and in some places extremely rich, containing good sized nuggets, many of which can be seen worn by the natives; they simply flatten them with a hammer to free them from any rough bits of quartz which might be adhering, punch a small hole in the centre, and string them for necklaces or bracelets. Picked samples of quartz broken from the bottom of the Ingotrow shaft, and sent to England since its return were immensely rich, and where they came from there must be certainly much more, unless taken from a "pocket," which these were not, and clearly show the rich strings or ribs running through the reef. The width of these reefs has not yet been ascertained, and will not be until the property is worked or extensively prospected, as the native shafts are scarcely ever more than 4 ft. wide, and at a shallow depth would not stand enlarging out to the width of the reef without running together. From my experience, he adds, in the mining district on the Gold Coast, I am pleased to state that the Ingotrow property possesses great advantages over many that are now worked as regards both position and the nature of the mineral to be treated, and the reefs when worked will prove rich, lasting, and very remunerative.

## COPPER ORES.

Sampled June 7, and sold at the Royal Hotel, Truro, June 22.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols.	107	£1 8 0	South Caradon	45	£5 17 0
ditto	106	1 2 0	South Devon United	82	2 1 6
ditto	101	1 6 0	ditto	78	1 12 6
ditto	83	1 6 0	ditto	77	3 0 6
ditto	90	1 6 0	ditto	11	8 13 0
ditto	85	1 6 0	Marke Valley	52	2 2 0
ditto	84	1 8 0	ditto	51	3 4 0
ditto	79	1 9 6	ditto	50	3 4 0
ditto	58	5 13 0	ditto	32	2 18 0
ditto	50	5 5 6	Glasgow Caradon	71	6 0 6
ditto	56	3 2 0	ditto	69	6 0 6
ditto	77	3 5 6	Bedford United	95	5 2 0
ditto	82	4 2 6	East Caradon	50	4 16 0
ditto	110	3 16 0	Holmbush	30	4 7 0
ditto	100	3 15 6	ditto	80	2 8 0
ditto	82	4 6 6	Prince of Wales	37	4 2 6
ditto	53	4 13 6	ditto	30	1 1 0
			Devon Friendship	24	3 3 6
			Mid-Devon	14	7 19 0

TOTAL PRODUCE.	
Devon Great Con.	934
Wheal Crebor	396
South Caradon	330
South Devon Utd.	330
Marke Valley	185
Glasgow Caradon	140
Average standard	£114 14 0
Average price per ton	£3 1 0
Quantity of ore	2735
Amount of money	£8344 4 6

LAST SALE.—Average standard, £ 97 13 0 | Average produce, 7½  
Standard of corresponding sale last month, £165 16 0 | Produce, 5½

COMPANIES BY WHOM THE ORES WERE PURCHASED.	
Name.	Amount.
Vivian and Sons	872
Neill, Druce, and Co.	1015
Williams, Foster, and Co.	635
Mason and Elkington	213
Total	2735

Copper ores for sale on Thursday, July 6, at Tabb's Hotel, Redruth.—Mines and parcels:—Mellnour 610—Navy Cook's Kitchen 120—East Pool 78—Mines & well Dolcoath 21—Wheal Boys 11—West Godolphin 7—Tolvaaden 3.—Total 927 tons.



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OLD METALS of EVERY DESCRIPTION PURCHASED for CASH.

## The Mining Market: Prices of Metals, Ores, &amp;c.

## METAL MARKET—LONDON, JUNE 30, 1882.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde...	2 9 0	—	English, ingot, f.o.b. 102 0 0	—	—
" Scotch, all No. 1 ...	2 9 0	—	" bars ...	103 0 0	—
Bars, Welsh, f.o.b. Wales 5 10 0	—	—	" refined ...	104 0 0	—
" in London ...	6 0 0	—	Australian ...	98 0 0	98 5 0
" Stafford ...	7 0 0	7 5 0	Banca ...	98 0 0	98 5 0
" in Tyne or Tees ...	6 5 0	—	Straita ...	98 0 0	98 5 0
" Swedish, London ...	10 0 0	—	COPPER.		
Rails, Welsh, at works ...	5 10 0	—	Tough cake and ingot ...	70 0 0	71 0 0
Sheets, Staff., in London ...	10 0 0	—	Best selected ...	72 0 0	73 0 0
Plates, ship, in London ...	9 0 0	—	Sheets and sheathing ...	77 0 0	78 0 0
Hoops, Staff., in London ...	7 10 0	7 12 6	Flat Bottoms ...	80 0 0	81 0 0
Nail rods, Staff., in Lon. ...	6 15 0	—	Wallaroo ...	72 0 0	—
STEEL.			Burra, or P.O.C. ...	71 0 0	—
English, spring ...	12 0 0	13 0 0	Other brands ...	66 0 0	68 0 0
" cant ...	30 0 0	35 0 0	Chilli bars, g.o.b. ...	67 0 0	67 2 6
Swedish, keg ...	15 0 0	—	PHOSPHOR BRONZE.		
" fag. ham. ...	15 10 0	—	Alloys I, II, III, and IV ...	£125 0 0	—
LEAD.			" VI and VII ...	140 0 0	—
English, pig, common ...	14 5 0	14 10 0	" XI, Spl. bearing metal ...	117 0 0	—
" " L.B. ...	14 12 6	14 17 6	BRASS.		
" W.B. ...	15 0 0	15 2 6	Wire ...	7 1/2 d.	—
" sheet and bar ...	15 0 0	—	Tubes ...	7 1/2 d.	—
" red ...	16 10 0	—	Sheets ...	7 1/2 d.	—
" white ...	19 10 0	21 10 0	Yel. met. sheath. & sheets ...	6 1/2 d.	6 5/8 d.
" patent shot ...	17 5 0	—	TIN-PLATES.*		
Spanish ...	13 17 6	14 0 0	Charcoal, 1st quality ...	1 10 0	1 2 0
NICKEL.			" 2nd quality ...	0 19 0	1 0 0
Metal, per cwt. ...	10 0 0	10 15 0	Coke, 1st quality ...	0 17 0	0 19 0
Ore, 10 percent, per ton ...	0 15 0	0 20 0	" 2nd quality ...	0 16 0	0 17 6
QUICKSILVER.			Black ...	per ton	15 10 0
Flasks, 75 lbs., war. ...	5 18 9	—	Canada, Staff. or Gla. ...	12 0 0	—
Silesian ...	16 12 6	17 0 0	at Liverpool ...	12 0 0	—
English, Swansea ...	17 15 0	—	Black Taggers, 450 of ...	30 0 0	—
Sheet zinc ...	20 15 0	—	14 x 10 ...	30 0 0	—

\* At the works, 1s. 1d. per box less for ordinary; 10s. per ton less for Canada; 1X 6s. per box more than 10 quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—During the past week the Metal Market has shown a slightly better tone, while in the leading metals business has been done at somewhat improved prices, but at the same time the fact ought not to be overlooked that where dealer rates have been obtained it has been chiefly in the raw material, where speculation exists on a more or less extensive scale. Therefore, the little improvement which has been here and there visible is not to be considered as an evidence that the whole trade is improving, but may partly be attributed to the falling due of recent "bear" prompts, combined with some other causes which have contributed to give temporary vitality to the markets. We say temporary vitality, but, of course, it is quite impossible to foresee how far speculation will carry the market. Prices may possibly be fictitiously pushed up, but that depends upon what extent operators are fascinated with the market, and, therefore, when we view the actual state of trade at the present time, not forgetting the surrounding events which must of necessity, to greater or lesser extent, influence business, it becomes difficult to imagine that buying operations will be carried on, beyond a limited extent. General trade keeps very quiet, and consumers and shippers buy in the most sparing quantities, while the political horizon is sufficiently clouded to greatly depress the markets. It is, therefore, difficult to see what encouragement speculators have in effecting purchases. They may, perhaps, for a time be able to uphold the enhanced prices, and thus those who are sharp may turn their purchases to good account; but, for those who intend to hold out for large profits, may find they have to wait a long time before they realise them, and may not unlikely have to witness many adverse changes and fluctuations before they gain the profits they are hopeful of securing. Circumstances are against them, and already there has this week been some little hesitation exhibited on the part of some buyers before effecting contracts, thus showing that where a rise has been made there is no general confidence placed in the permanency of the advance.

By these remarks, however, we do not intend to hint that regular trade may not improve eventually, say some time during the autumn, because there yet remains too much uncertainty of future events. At present no reliance can be placed upon this year's crops, and while there is still room for hoping that a fairly good harvest may be reaped, yet there is so much doubt that it appears very risky to speculate and make purchases for forward prompts merely in anticipation that from this cause trade will revive, and higher prices necessarily be realised. But leaving the far future out of the question, and treating only with the more immediate prospects, we fail to see any grounds for expecting a thorough resuscitation in the trade. In fact, on the contrary, there is reason to fear that, notwithstanding the little better feeling which has occasionally manifested itself in speculative circles, that general business will remain slack and show little, if any, improvement upon its present gloomy and depressed condition, for just now neither political, agricultural, or commercial affairs are sufficiently bright to promote or encourage orders.

COPPER.—A moderate business has been doing in this metal during the week, while prices have undergone very little change, but a hardening tendency has for the most part been visible in Chili bars, other descriptions remaining very steady. The course of this market appears to be attended with some uncertainty; a few operators appear not only hopeful but also sanguine that a rally will be made, but judging from the present state of legitimate trade there appears but little chance of any permanent improvement being effected; and should the statistics which will be published to-morrow, or early next week, not show any decrease in the public stocks, which does not seem to be expected, there is very little inducement to encourage speculators to continue buying; while if the next charters should be at all heavy, a pressure to sell rather than to buy would doubtless characterise the market. It was more at the early part of the week that prices appeared stiffer, but yesterday, although there was no appreciable change in quotations, yet in the latter part of the day there was some little disposition evinced to take advantage of the slightly more favourable rates then quoted, but at the ruling quotations very little business was practicable, hence some few sales were made at a trifling below business rates. There does not seem to be any general sanguine expectation with regard to the future of this market, which is proved by the hesitation which operators often show before making contracts; while, on the other hand, the strong interest which seems to exist in the maintenance of prices, prevents the market from falling away to any great extent. The business in manufactured continues of a limited nature both for copper and yellow metal, although, perhaps, there is slightly more enquiry from India, but chiefly at impracticable limits.

IRON.—There has not been a very great business doing in manufactured iron, but as some few manufacturers booked a limited number of fair orders a week or two back, which have not been as yet executed, there are still some works where tolerably regular employment exists; but taking the trade at large it must still be reported as in a dull and gloomy condition, which is clearly proved by the eager manner in which manufacturers solicit orders. Most descriptions of iron are alike, but little business being done, either in Staffordshire, Welsh, or East Coast qualities, but with regard to Scotch pigs the following returns from Glasgow show that a tolerably active business has been doing; and while prices have been rather fluctuating they nevertheless at the early part of the week advanced to some slight extent. It appears, however, to have been in want of a trifling below business rates. There does not seem to be any general sanguine expectation with regard to the future of this market, which is proved by the hesitation which operators often show before making contracts; while, on the other hand, the strong interest which seems to exist in the maintenance of prices, prevents the market from falling away to any great extent. The business in manufactured continues of a limited nature both for copper and yellow metal, although, perhaps, there is slightly more enquiry from India, but chiefly at impracticable limits.

The Glasgow Warrant Market opened on Monday with a very strong feeling, and business was done upon a tolerably large scale between 48s. 2 1/2d. and 49s. 1 1/4d.; while on Tuesday there was great activity in the market, and 49s. 6d. was touched, from which point it gave way to 49s. 1d., improving again, however, to 49s. 4d. On Wednesday the market remained unsettled, and in the forenoon transactions were carried through at 49s. 2 1/2d., but afterwards the price gave way to 48s. 10d., to 48s. 11d., improving, however, again yesterday to 49s. 2d., and closing to-day at 49s. The shipments last week were only 10,147 tons, against 10,577 tons for the same week of last year, or a decrease of 430 tons, and which makes the total shipments for the whole of this year 239,792 tons, against 263,199 tons for the same time of last year, and 371,754 tons for the similar period of 1880. The number of furnaces in blast remain at 108, while the stock in Messrs. Connal and Co.'s yards show a decrease for the week of 811 tons, amounting to 636,715 tons, against 637,526 tons a week ago. The imports of Middleborough pig-iron into Grangemouth last week were 2520 tons, against 3207 tons for the same week last year, being a decrease of 687 tons, and which leaves a total decrease for the whole of this year, compared with last, of 40,681 tons. The Cleveland market is said to be very firm, and the strike difficulties are said to have been brought to an amicable settlement. With regard to price, No. 3 is quoted generally at about 43s. 6d., although some few parcels have been offering at rather less, and makers have resolved not to advance their price for the present above this figure. There is a further reduction in Messrs. Connal and Co.'s yards at Middleborough of 1713 tons, which has also tended to give strength to the market.

There is rather more enquiry for manufactured, and ship-plates are quoted at 67. 15s. to 7l. Common bars are quoted at 67. 2s. 6d., and angles at 2s. 6d. per ton more, while puddled bars are selling at 80s. A fairly cheerful tone is said to prevail on the Wolverhampton market, and a tolerably good enquiry is reported for sheets, at an advance of about 5s. the present price being 87. 8s. 10d. for singles, while common bars are also slightly dearer at 87. 5s. to 87. 10s. There is also said to be a fair enquiry for pigs, and Derbyshire qualities rule at about 47s. 6d. per ton. There is not very much business doing at Birmingham, new orders being put off until some of the strike is removed, although the market is well occupied with old contracts. Sheets appear to be in rather better enquiry than other descriptions, chiefly for galvanising purposes, but buyers generally seem rather indisposed to make purchases, preferring to wait and see the result of the forthcoming quarterly meeting. The market at Sheffield is stated to be in a fairly active state, and higher prices appear to be anticipated. In railway material, however, the demand is not quite so good, although the armour-plate mills are said to be well employed. At Newport, in Wales, there is very little change in market prices, and in foreign at steady prices. There is not much attention in the state of the American market, for, according to advices from New York, of the 22nd inst., No. 1 Gartaherrie is quoted at \$25.50; Glengarnoch at \$24; Coltness at \$26; and Eglinton at \$22.50. Cleveland pigs show a rise of 2s. and is now quoted at \$21.50. Scrap iron is offering at 2s. lower, the present price being \$25, while old rails are 2s. dearer, and are quoted at \$27.50.

TIN.—A very large business has been doing in this metal, and prices have shown numerous fluctuations. As usual, the principal business that has been done has been for speculative account. A sharp rise having been made towards the close of last week the advance was continued, and sharply kept up until yesterday, when less tone was visible. It being quite impossible to foresee the future of this market, as no certainty can be gathered from surrounding events, or from the present state of the trade, we must content ourselves with watching the movements that have been made from day to day, and although it is but natural to infer that after so sharp a rise a reaction would take place, yet no reliance can be placed upon the course of so speculative a market, and more particularly when so strong a speculative feeling prevails, in giving support to the market. The price at the opening on Monday was fully 10s. advance of what it was at the close of last week, business in foreign being done up to 98l., and on Tuesday 96l. 10s. was paid. On Wednesday the market was again very active, and the price quoted was 97l. 10s. to 98l., the market remaining steady thereafter yesterday, and closes to-day at 98l. to 98l. 5s. per ton.

SPELTER.—Market dull, ordinary brands 16l. 12s. 6d. to 16l. 17s. 6d., and specials 17s. 6d. to 17s. 10d.

LEAD dull. Spanish, 13l. 17s. 6d. to 14l.; English, 14l. 5s. to 14l. 10s.

STEEL fairly active at steady prices.

TIN-PLATES.—A moderate business only is doing, and prices are a shade stronger.

QUICKSILVER is without change whatever.

Soon after our fast the MINING SHARE MARKET seemed to improve a little, general business became more active, and a fair demand arose for one or two prominent mines; but the improvement did not last long, and the chief business of the week has been the settlement of the usual fortnightly account. Prices as a rule are lower, but more from the absence of buyers than from any changes in the mines. Those dealt in have included Wheal Crebor, West Crebor, Killifreth, Wheal Basset, West Kitty, East Blue Hills, Bedford United, Prince of Wales, Bratsberg, and a few others.

TIN has been firmer in the London market, and on Thursday the smelters in Cornwall advanced the standards for ore 2l. per ton, but it has made very little difference in the prices of shares or in the extent of business. Blue Hills are quoted 1 1/2 to 1 1/4; Carn Brea, 12 to 13; Cook's Kitchen, 38 to 40; Dolcoath, 68 to 70; East Lovell, 1 1/2 to 1 1/4; East Pool, 54 to 55; East Blue Hills, 8 to 9; Killifreth, 5 1/2 to 6; Phoenix, 2 1/2 to 2 1/4; South Condurrow, 8 to 8 1/2; South Frances, 11 1/2 to 12 1/2; Tincroft, 13 to 14; West Basset, 10 to 11; Drakewalls, 1 1/2 to 1 1/4; Kit Hills, 1 1/2 to 1 1/4; West Frances, 10 to 11; West Peavor, 11 1/2 to 12 1/2; Wheal Basset, 10 to 10 1/2; Wheal Grenville, 10 1/2 to 11; Wheal Jane, 1 to 1 1/4; Wheal Jewell, 5s. to 10s.; Wheal Kitty (St. Agnes), 1 to 1 1/4; Wheal Peavor, 9 to 10; Wheal Uny, 2 1/2 to 3 1/2. South Crofty, 11 to 11 1/2; at the meeting the accounts showed a loss of 842l. on three months' working, and a debit balance of 3346l. A call of 7s. 6d. per share (2043l.) was made. The tin sold, 28 tons, realised 1455l. The agent stated that as soon as the winze was through from 180 to the 160, the returns would be increased, and this would take two to three months to accomplish. The prospects were considered very favourable. West Kitty, 9 1/2 to 10; the 80 west is worth 25l. per fathom, the 72 east, 8l. Stopes in back of 72 worth 35l. Rise in back of 60, 20l. per fathom. Trevanance, 2 1/2 to 2 1/4; Goodevere, 1 1/2 to 1 1/4; New Trumpet, 1 to 1 1/4. Wheal Agar, 15 to 16 1/2; at the meeting to be held in Cornwall this day (Friday) a heavy debit balance is expected, as the water has been in the mine. Improvements, however, have been made in the pitwork, and the agents hope to see the bottom of the mine in a month's time. The mine is rich enough to give good profits if they could only keep the water out.

COPPER is pretty steady; but there is scarcely any business doing in shares, and no change of any importance in quotations. Bedford United, 1 1/2 to 1 1/4; Carnarvon Copper, 1 1/2 to 1 1/4. The ore here realised 392l. 4s. 10d.; the best parcel, 26 1/2 tons, brought 9l. 17s. 6d. per ton; the second, 6l. 13s. 3d. per ton. Devon Great Consols, 6 to 6 1/2; Devon Great United, 1 1/2 to 1 1/4; Gunnislake (Clitters), 2 1/2 to 2 1/4; Hington Down, 10s. to 10s. 1/2; Mellanear, 4 1/2 to 5; Marke Valley, 6s.

to 10s.; Mona, 4 to 5; Mona Consols, 1 to 1 1/4; New Cook's Kitchen, 6 to 6 1/2; New West Caradon, 2s. to 4s.; Prince of Wales, 8s. to 10s.; Wheal Crebor, 2 1/2 to 3 1/4; the No. 2 winze below the 120 fm. level has improved to 70l. per fathom, and the total points in operation to 217l. per fathom. Devon Friendship, 4s. to 6s.; the new stope in the 30 west, set at 2l. per fathom, is worth 3 1/2 tons of arsenical munda and 1 1/2 ton of copper ore per fathom. South Devon United, 1 1/2 to 1. Sortridge, 5s. 6d. to 6s. 6d.; the stope in the 30 is worth 10l. per fathom. The wheel pit is expected to be completed next week. West Seton, 17 1/2 to 18 1/2; West Tolgus, 14 to 16; South Caradon, 12 1/2 to 17 1/2; West Caradon, 7s. 6d. to 10s.; West Devon Consols, 1 1/2 to 1 1/4; Parys Copper, 9s. to 11s.; the sampling here is 400 tons of copper ore. West Crebors have been largely dealt in at 12s. 6d. to 15s.; no lode has been taken down since last week, consequently no change. Morfa Du, 1 1/2 to 1 1/4; the lode at Ida shaft continues worth 3 tons of blue stone and 3 tons of copper ore per fathom.

LEAD MINES continue in a depressed state, with scarcely any business doing, and quotations nominal. Van, 6 to 6 1/2; Great Laxey, 17 to 18; Roman Gravels, 9 to 9 1/2. Tankerville Consols, 5s. to 6s.; they have sold 60 tons of blende for 47. 7s. per ton. East Roman Gravels, 12s. 6d. to 15s.; the 109 south is worth 1 ton of lead ore per fathom, and the 97 south 1 ton. They have sold 40 tons of lead ore at 9l. 3s. 6d. per ton. Pandora, 1s. to 3s.; mine looking well. They have sold 20 tons of lead ore at 8l. 13s. 6d., and 25 tons of blende at 17. 12s. 6d. per ton. Bwlch, 1 1/2 to 1 1/4; Coed-y-Fedw, 1 to 1 1/4; Denbighshire, 1 1/2 to 2. D'Eresby Mountain, 1 to 1 1/4; the sampling here is 20 tons of lead ore only, owing to the short supply of water during the early part of the month. Frongoch, 9s. to 11s.; Goddards, 1 to 1 1/4; Great Holway, 5 1/2 to 5 1/4; Gorsedd and Merilyn, 2 to 2 1/4; Lead-hills, 1 1/2 to 2; Minera, 8 to 10; Pennant, 4 1/2 to 4 1/4; Van Consols and Glyn, 1 1/2 to 1 1/4; West Holway, 1 1/2 to 1 1/4; West Lisburne, 1 1/2 to 1 1/4; Sinclair Lead, 1 to 1 1/4.

FOREIGN MINES.—Akankoo, 1 1/2 to 1 1/4; Alamillos, 1 1/2 to 1 1/4; Al-mada and Tiritio, 1 1/2 to 1 1/4; Anglo-African Diamond, 6 to 7; Broadway, 3 to 3 1/2; Cape Copper, 5l. to 53; Cape of Good Hope Diamond, 1 1/2 to 2; Central Jagersfontein, 1 1/2 to 1; Chile Gold, 1 1/2 to 1 1/4; Colar, 1 1/2 to 1 1/4; Cootacovil, 1 1/2 to 1 1/4; Copiapo, 3 to 3 1/2; Devala Central, 1 1/2 to 1 1/4; Devala Moya, 1 1/2 to 1 1/4; Devala Provident, 1-16ths to 3-16ths; Don Pedro, 1 1/2 to 1 1/4; Fortuna, 3 1/2 to 4 1/2; Frontino and Bolivia, 2 1/2 to 2 1/4 ex div.; the report of the meeting will be found in another column; Indian Consolidated, 1 1/2 to 1 1/4; Indian Glenrock, 1 9-16ths to 1 11-16ths; Indian Phoenix, 1 1/2 to 1 1/4; Indian Trevelyan, 1 1/2 to 1 1/4; Kapanga, 1 1/2 to 1; Kimberley North Block, 5 1/2 to 6 1/2.

La Plata, 1 1/2 to 2, ex div.; the July dividend will be paid to-morrow (Saturday). Mason and Barry, 1 1/2 to 1 1/4; Mysore Gold, 1 1/2 to 1 1/4; New Quebrada, 4 to 4 1/2; Nouveau Monde, 1 1/2 to 1 1/4; Ooregum, 1 1/2 to 1 1/4; Panulcillo, 5 1/2 to 6 1/2; Pestarene, 1 1/2 to 1 1/4; Rhodes Reef, 1 1/2 to 1 1/4; Richmond, 8 to 8 1/2; Rio Tinto, 23 to 24, and much business doing in the shares to bearer; Ruby and Dunderberg, 2 to 2 1/2; South-East Wynaad, 3 1/2 to 3 1/4; St. John del Rey, 150 to 170, ex div.; Tambacherry, 1 to 1 1/4; Tharsis Sulphur and Copper, 40 to 41; Tocopilla, 1 1/2 to 1 1/4; Wentworth, 1 1/2 to 1 1/4; Wynaad, 1 1/2 to 1 1/4; Organos, 1 1/2 to 2 1/4. Bratsberg, 1 1/2 to 1 1/4; the Mary Owen, with 220 tons of 20 per cent. ore, is daily expected. The Via brings another cargo next month, and the Mary Owen is chartered for a further cargo in August. Colombian Gold, 1 1/2 to 1 1/4; Corporation of South Australia Copper, 1 to 1 1/4; Tolima, A, 2 1/2 to 3 1/2; Gold Hill, 1 to 1 1/4.

The Market for Mine Shares on the Stock Exchange has been fairly active during the week, but business has been almost exclusively in foreign shares. South African diamond shares have been much more dealt in, and although prices are not in all cases maintained it is quite practical to sell the shares, which for many weeks it has not been. Cape Coppers have been done to-day at 51 1/2, Mason and Barry at 16 1/2, and New Quebrada at 4 5-16ths. There has been no material change in the copper market, but tin is stronger, chiefly through speculative purchases, and the standards for tin ores have been raised 2l. per ton; it is not generally thought, however, that the improvement is more than temporary. St. John del Rey have been dealt in at 162 1/2 to 165 ex div. during the day, and close with an upward tendency.

Our usual telegram from Cornwall this evening states that during the past week the Cornish Mine Share Market has been firmer than for some weeks past, and prices in the leading shares are fairly strong. The smelters advanced the tin standards 2l. per ton yesterday, the standards being—Common, 93l.; refined, 94l. per ton. At North Bury meeting, yesterday, the accounts showed a loss of 776l., and a call of 4s. per share was made. At Wheal Agar meeting, to-day, the accounts showed a loss of 5259l. on 16 weeks' working, and a balance 6044l. against the mine. The agents' report showed that the attention of the men had been almost totally directed during 16 weeks to renovating the pitwork and generally improving appliances for raising tin. A call of 10s. per share was made. Carn Brea, 12 1/2 to 13; Cook's Kitchen, 39 to 39 1/2; Dolcoath, 69 1/2 to 70; Killifreth, 5 1/2 to 5 1/4; New Cook's Kitchen, 6 1/2 to 6 1/2; South Frances, 12 to 12 1/2; Trengobon, 3 to 3 1/2; West Basset, 10 to 10 1/2; West Peavor, 12 1/2 to 13; Wheal Agar, 15 1/2 to 16; Wheal Basset, 10 1/2 to 10 1/2; Wheal Peavor, 9 to 10.

Another correspondent sends us telegram this evening:—At the meeting of Wheal Agar adventurers, held on the mine this day, a call of 10s. per share was made. A very satisfactory report from Capt. Trevena was read. The necessary changes and renewals of pitwork, &c., being nearly completed great satisfaction was manifested on Mr. Jenkin announcing that Lord Robartes had volunteered to give the adventurers 500l. to enlarge and increase their present boring machinery plant. Wheal Agar adventurers were about the first to erect and persistently assert their necessity and applicability.

In Indian Gold Mine shares there has been a considerable amount of business doing, but prices have not materially varied. The Indian Glenrock Company will hold its annual general meeting next week, and in forwarding the balance-sheet to the shareholders, the directors state that they very recently furnished the manager's detailed report of the progress of the operations at the mines during the past year, and they take this opportunity of stating that up to latest information from India still further satisfactory progress had been effected. The mill to work 20 head of stamps is erected; all the necessary arrangements for working the same by water-power are also complete. The tram-road, shoot, and incline for the delivery of the quartz at the mill, are almost finished. This is an engineering work of considerable magnitude, embracing an aggregate distance of 8520 feet, through most difficult country, and the whole has been effected at a very moderate expense. Some delay has been occasioned in consequence of the non-arrival of the mill manager to take up his appointment, but there is no reason to doubt that the general manager's anticipations that everything will be in readiness to commence bulk crushing in July will be realised, and he adds: "When we do commence it will not be an affair of trying for a week or two and then knocking off, but a regular bona fide crushing, and we have reserves of good quartz now at bank and in the stopes which will keep us going continually for a long time." The monsoon burst with great violence on May 16, since which date heavy rain had fallen; the manager, however, reports that no damage had been done to the works. As regards prospects, there are distinct indications of improvement in the richness of the quartz as depth increases, and the existence of alluvial deposits in various parts of the estate is confirmed, and the manager writes that the explorations thereon are decidedly encouraging; it may, therefore, be reasonably expected that so soon as the works are fairly in operation, the results for which the shareholders have been patiently waiting, will begin to be realised.

In Electric Light shares there has again been a very heavy decline, but they do not close at their worst, so that taking the comparison for the week Brush Parents (4l. paid) are but 10s. lower, 26 1/2 to 27l., but they have been sold as low as 25l.; whilst the fully paid are 2l. lower, closing 47 to 52. Hammonds are 1l. 10s. lower, closing 10 1/2 to 11 1/2; and Electric Light and Power Generators are about the same, 1/2 dis. to par. The Markland Company announced a fortnight since has collapsed, and returned the deposits, which, however, were, it is understood, so small, that except for form sake, it was scarcely worth while to advertise the return; yet the light is an excellent one, and it is not doubted that when the concern is again brought forward, as it will be in a month or so, it will have a better reception. The Lampe Soleil has been attracting a large number into the vaults beneath the Royal Exchange during the week, and is much admired. The prospectus will be issued shortly.

The Electric News Telegraph Company, with a capital of 100,000l., in shares of 5l. each, has been formed to purchase for 36,000l. certain patent rights and plant. The prospectus states that no branch of scientific research is now receiving more attention, or is more productive of important practical results, than electricity. One of the latest



purposes to which it has been applied is in connection with a remarkable machine for supplying quotations and news of every kind direct into the offices and houses of subscribers by self-acting apparatus. It is remarkable for its simplicity, and is thoroughly reliable in action, the whole of its varied movements being regulated by one single wire. A single clerk can instantaneously transmit the news he may have to communicate to a thousand or more subscribers by one operation. The company has secured the exclusive rights for this valuable invention for the whole of the United Kingdom, and also the new patents for the improvements recently effected therein for the whole of the United Kingdom, France, and America, with the further right to patent improvements throughout the world. These improvements are of so important a character that the machine is believed to be now the most perfect in existence, the only other machine believed to be in use being one which was patented some years ago, but which necessitates the use of two wires, whereas the whole of the work by the instruments under the patent secured by this company is done by one wire, resulting naturally in great economy in the working. It will be seen, therefore, that the field this company will occupy is most extensive. Looking to the large sums expected to be obtained by the sale of its licences, the profits of the enterprise as a "parent" company should be very considerable, and the prospects of the undertaking generally are highly encouraging.

The Exchange Telegraph Company, whose offices are at 17 and 18, Cornhill, disputes the accuracy of some claims put forward for the invention secured by a new company launched this week. The Exchange Telegraph Company's advertisements will be found in another column, but it may be here stated that amongst other things they say that the well-known MacMahon's Telegraphic News Company, which has now been at work since 1879, and which numbers at present about 150 subscribers, including 44 of the principal clubs, 2 newspapers, and 31 hotels, is now re-organised under the name of "The General Telegraphic News Company," with a view to the extension of its operations in the provinces, under arrangements whereby the Exchange Telegraph Company furnish the requisite instruments, depending upon results for its remuneration. The ten years' experience of the Exchange Telegraph Company (Limited) in the working of type-printing instruments, assisted by data obtained from the Gold and Sack Company of New York, with whom the system originated, enables the management to supply instruments best adapted to the requirements of the various classes of news called for by the public, and where for long distances it may be desirable to have single wire system the speed will only be limited by the proficiency of the operator. The instruments being automatic require no attention whatever from subscribers, no knowledge of telegraphy is requisite to understand their use, there is no winding up, no locking the printing in plain Roman characters, letters and figures in separate lines to prevent confusion, and the propulsion of the paper being effected by the electricity supplied from the offices of the company.

The Victoria Gold Company, with a capital of 200,000l., in shares of 1l. each, has been formed to purchase for 100,000l. a valuable property in Guayana, Venezuela. The prospectus will be issued shortly, and states that the property which the company proposes to purchase is located in the same geological belt of country (but in a richer and later discovered district) as the renowned mine El Callao, which at present may be taken to be the most productive gold mine in the world. This mine produced in the year 1881 the large quantity of 65,000 ozs., or over 2 tons of gold; this, calculated at 34. 17s. per oz., gives a gross return of 250,250l., an extraordinary yield for 12 months. Since its discovery upwards of three million pounds sterling worth of gold has been returned, the weight of the gold bars sent to Messrs. Baring Brothers, London, according to advertisements in the *Mining Journal*, were:—For December, 6579 ozs.; January, 8115 ozs.; February, 11,183 ozs.; March, 9609 ozs.; April, 8431 ozs.; total for the five months' returns, 43,919 ozs.; equal to over 160,000l. sterling. The report, it is added, of Mr. Christopher Danby, civil and mining engineer, a well-known and practical expert in gold and silver mining, who has visited the mines and thoroughly inspected them, fully bears out the local reputation of the property; it is one of great value, and with suitable machinery exceedingly large profits may be realised.

Devon Great Consols, 6½ to 7; the sinking of the engine-shaft below the 88, at Watson's, is being pushed forward, the ground being favourable for progress. The lode in the new shaft, at the bottom of the 190 east, is worth about 4 tons of copper and mundie per fm.

Devon Great United, ½ to ¾; the lode in the 60, west of Watson's shaft, is yielding good copper and arsenical ores. The machinery for the rock drills is being put in place.

Kit Hill Consols, ½ to ¾; satisfactory progress is being made at the Great Tunnel, and the various points in the mines are looking well.

South Devon United, ½ to 1; the different levels are of about the same value as last week. Martin's shaft is down over 40 fathoms. The quantity of ore weighed off 339 tons 7 cwt. 2 qrs.; worth about 810l.

Drakewalls, ½ to ¾; new tributaries have been put on at the mine, and it is expected that some good tin ground will be shortly opened out in the south branches. The operations at the dressing works are progressing favourably.

Nouveau Monde Gold, ½ to ¾; the gerant—Mr. F. Paganelli—announced that he has at last succeeded in making arrangements with a group of powerful capitalists, who have provided the funds necessary and deposited them with Messrs. Baring Brothers, to complete the purchase of the Nacupal mining properties, and who have agreed to find sufficient working capital. The properties comprise 10 concessions, No. 1 to 10 inclusive. These arrangements, it is pointed out, secure to the Nouveau Monde Company a fixed and substantial interest. These mines, which are considered exceptionally valuable, will be worked by the new combination, and operations on a scale commensurate with their great value will be promptly commenced. A full and complete report will be shortly issued to the shareholders, describing the details of these arrangements. In the meantime the gerant feels he may now confidently congratulate the shareholders on their present prospects.

The Cankim Bamoo Gold Mines, whose prospectus was advertised in the *Journal* of June 17, sent out the letters of allotments on Thursday.

La Plata, 1½ to 2 ex. div.; the usual monthly dividend will be paid to-morrow (Saturday). The smelting statement for last week shows ore purchased, 1257 tons; and smelted, 976 tons; the produce being 17,700 ozs. of silver, and 192 tons of lead. The silver-lead bars consigned to the refiners were 190 tons of the value of \$35,000, or 7291l.

Richmond, 7½ to 8½; the usual telegram from the mines states that the week's run was \$26,000 from 475 tons of ore, with one furnace. During the week the refinery produced doré bars to the value of \$25,000. The superintendent's weekly report (June 5) states that the 900 north drift from west drift (Burleigh drill) has been run 19 ft. in limestone, stratified. The 900 north-east drift from north drift (Burleigh drill) has been run 7 ft. in limestone. The 900 south-east drift from north-east drift from north drift (Burleigh) has been run 2 ft. in limestone. All drifts on the 900 level were stopped May 31 for the purpose of rising and sinking in ledge matter on 900 north-east drift.

Ruby and Dunderberg, old shares, 2 to 2½; new shares, 1½ to 1¾ prem.; the usual weekly report advises fair progress in the developments in the three mines now being worked by the company. A shipment of 107 tons ore had been made to the Richmond furnaces for smelting. At the half-yearly meeting of the shareholders held on Tuesday last the chairman read some interesting reports on the mines from Mr. Rickard and from Mr. Peters (the resident manager); he also explained that the shipments of ore from the mines for the present would be small, as the greater part of No. 8 ore body would not be available for stoping until the main shaft had been sunk deeper and a drift run to come under this body.

Eureka (Nevada) Silver, ½ to ¾; a correspondent writes that the report from Bald Eagle this week does not compare quite so favourably with the former one as usual, as the ore extracted is not of quite such a good grade, though in point of size the body of ore is daily increasing. Small seams of good ore are constantly met with, which is a good feature. The Williamsburg is reported as improving, the shipments for the week being 25 tons.

The directors of the Sanitas Company at their board meeting held this day, after providing for the usual interest at the rate of 5 per cent. on the preference shares, have decided to pay an interim dividend upon the ordinary shares for the half-year ended June 30 at the rate of 10 per cent. per annum.

Sentein, 11s. to 13s.; steady progress is said to be making here. The output of ore for the first fortnight in June amounted to 650 tons. The prospects were never so bright.

Kapanga, ½ to 1; letters from the superintendent to May 20 received on Thursday are considered very satisfactory, and a correspondent writes: It would be interesting for any shareholder to call at the office to see the samples of quartz that accompany the letters. Picked specimens of extraordinary richness, probably showing 10 to 12 cts. in 1 lb. A valuable lease has also been made by the company of two sets—The Golden Point and Empress, at either end of the Scotty's lode, at a nominal rental of 33l. per annum. These sets can be worked at the 50, and opens out further fields for operations in the future. The superintendent considers that the company now owns the most valuable property in New Zealand.

In Lead Mine Shares there has been scarcely anything doing, and it is practically impossible to effect sales except at a very large

reduction from quotations. Roman Gravels, 9 to 9½; the various levels continue to yield good stones of lead ore. The stopes are worth together 52 tons of lead ore per fathom. The surface operations for new machinery and additions to dressing-floors are being pushed forward.

Ebbw Vale Steel and Iron, 9½ to 10; an animated meeting was held at Manchester on Wednesday, and it is anticipated from the proceedings that the capital account of the concern will be rearranged in a manner likely to benefit all parties. In the course of a long speech, it was pointed out by Mr. William Abbott (of Tokenhouse-yard) that whereas the net profits of the concern were actually sufficient to provide a dividend of 15s. per share, the directors proposed that 5s. a share only should be distributed among the shareholders. He also alluded to the fact that terminable debentures carrying 5 per cent. and 6 per cent. interest were running, and pointed out that if the finances of the company were put upon a sounder basis, in the present state of the money market the existing debentures could easily be replaced by some which could be raised at 4½ per cent., and this, he said, would effect a saving of at least 4700l. a year. He protested against the financial policy of the board, intimating that so long as it was continued the credit of the company would be very seriously damaged. It would be impossible to raise money at a fair rate of interest so long as the shares were selling at 50 per cent. discount, and he urged, the proper course to adopt was to begin by raising 50,000l. of debentures at 4½ per cent., to redeem those bearing a higher rate as they fell due, stating that no doubt there would be a loss of interest between the amount to be received on deposit pending the time the debentures would be surrendered, but that this was nothing compared to the unmarketable character of the debentures in their present form, those of 5 and 6 per cent. not having a free market, and being quoted alike, but that in addition as part of his plan he would recommend that the present shares of 23l., 20l. paid with 3l. liability, should be exchanged for four shares of 6l., with 5l. paid and 1l. liability. By adopting this plan there would be a slight increase in the liability of the shareholders in one sense, but to compensate for it their shares would be in a more attractive form, and consequently a more popular investment than at present. In addition to this the security of the debenture-holders would be increased. He maintained that in reality there was no necessity for this, as at the present moment the rents and royalties, which were specially set apart for the security of the mortgages, amounted to the handsome total of 39,600l., or more than 5 per cent. upon the entire debenture issue. He expressed his confidence in the property if it were properly administered, but he protested against the policy which the directors had pursued, and seemed disposed to pursue in the future. He hoped that, even though his views might not that day receive acceptance from those shareholders present, still, when a full report of the proceedings was circulated amongst the proprietors, they would see the wisdom of the advice which he now tendered.

The English-Australian Gold Mining Company meeting has been fixed for Friday next, when the directors will report that the total quantity of quartz raised from the eastern reef of the Sir Roderick Murchison Mine at Fryer's Creek, Victoria, and crushed by the company's mill from March 12, 1881, to March 11, 1882, was 10,021 tons. The produce of standard gold was—from the stamps, from cleaning the copper amalgamating plates, from pyrites, and from tailings, 1839 ozs. 17 dwts. 11 grs. of standard gold, equal to an average yield of 3 dwts. 18½ grs. per ton of quartz. The total quantity of quartz crushed from the eastern reef was 241 tons, but the gold from only 211 tons is included in this year's accounts, the produce from which was 19 ozs. 4 dwts. 4 grs. of standard gold, equal to an average yield of 1 dw. 15½ grs. per ton of quartz. The total quantity of quartz crushed was 10,262 tons, and the Australian expenditure was 6465l. 10s. 7d., equal to 12s. 7d. per ton. The total yield of the standard gold was 7328l. 14s. 11s., and the sale of magnetic iron and pannings realised 131. 0s. 6d. = 7341l. 15s. 5d., whilst the Australian expenditure was 6465l. 10s. 7d., leaving a profit on the Australian working of 876l. 4s. 10d. From this falls to be deducted the London expenditure of 318l. 11s. 1d., leaving a surplus of 557l. 13s. which is increased by the addition of 19l. 3s. 8d. received for interest and discount to 576l. 17s. 5d. Of this surplus the directors, have in accordance with the Articles of Association, carried 500l. to a depreciation fund, an amount which they think is not more than sufficient to cover the depreciation in the mine, plant, and machinery.

The interest warrants for the half-year ended June 30 on the 4½ per cent. Debenture Stock, of the Railway Debenture Trust Company were posted this evening.

The directors of the Anglo-Foreign Banking Company have declared the usual interim dividend of 2½ per cent. for the half year ended June 30, payable on July 11.

The estimated traffic receipts of the New York, Pennsylvania, and Ohio Railroad Company for the second week in June amounted to \$121,752, against \$111,449 for the same period last year, showing an estimated increase of \$10,303.

GAS SHARES.—The principal business in these shares, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, has been: Bombay (Limited), 59½; Continental Union, 25½ to 25¾; Gas Light and Coke, (ordinary), 169½ to 170; ditto, H. 7 per cent. 127½ to 128½; London, 129 to 130; Imperial Continental, 135 to 136½; South Metropolitan, B. 171½ to 172½.

INSURANCE SHARES have, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, been dealt in as follows:—Alliance British and Foreign, 36½ to 36¾; City of London Fire 1½ to 1½½; City of Law Marine Corporation, 15½ to 15¾; London and Provincial Fire, ¾; Merchants Marine (Limited), 21½; Merchants, 1¾ to 2¼; Ocean Marine, 8¼; Thames and Mersey Marine, 13¼.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. W. ABBOTT, of Tokenhouse-yard, are given in tabular form in the last page of the *Journal*.

RAILWAY AND GENERAL MARKETS.—Referring to the course of business done to-day during official hours (11 to 3) Mr. Ferdinand R. Kirk, Birch-lane, writes:—Opening: In addition to those of yesterday one or two more failures are regarded as imminent. When it is remembered that United have dropped 14 per cent. since June 12, and that by some strange infatuation ever broker had clients who were "bulls," the account may be considered to have passed off very well. Unified are 53¼ to 54, much the same as last night. A severe struggle continues in Brighton, A, the price of which quickly vibrates between 128 and 130; in April this stock was in favour at 14. Spanish, 27 to 27½, ex 17 to 15½; Hudson Bay, 24½ to 24¾; the dividend and the 2½ cent. returned. East Blue Hills, ¾ to ¾½; West Crebore, 12s. to 14s.; Wheel Crebore, 2½ to 3.—Closing:—Yesterday Mexican Ordinary, after touching 106, rallied to 110, and are now quoted 111 to 112. Brighton, A, have become flat 127½. Unified are below 54. Erieare 85½ to 87, and Readings 82½ to 83. Mason and Barry, 16¼ to 17; Rio Tinto, 23¼ to 23½.

MESSRS. PEXLEY and ABELL.—GOLD: There has been some export demand for gold during the last few days, and the 250,000l. per Gallia, from New York, was taken partly for India and partly for the Continent. In addition, the arrival comprised—95,500l. (chiefly sovereigns), per Copaxi, from Melbourne; 69,000l. sovereigns, from Alexandria, and 2,000l. per Para from the West Indies. The Servia from New York, brings 250,000l. for the Italian Loan, 45,000l. arrived on London account, via St. Nazaire, per Ville de Bordeaux. 100,000l. sovereigns have been shipped to Lisbon, and 105,000 to the Brazils. 50,000l. in bar gold was sent to Bombay, per Peninsula and Oriental steamer Pekin, on the 27th inst. A small amount was withdrawn from the Bank of England for Paris—65,000l. has been sent in, and 119,000l. withdrawn from the Bank since our last.

SILVER: The market has shown an upward tendency since the date of our last circular, and closed at 51½ to 51¾, per standard, at which rate a very limited amount, per Royal Mail steamer Para, was sold; the arrivals from New York do not exceed 30,000l., and the supply on hand is very small; 90,000l. was shipped to Bombay on 27th inst. per P. and O. steamer Pekin, and 10,000l. to the same port on 23rd inst. per Klivia from Venice.—MEXICAN DOLLARS: We have no change to report in the value of dollars, which maintained their price of 51¼d. per oz., the rate at which about 110,000l. per Para was disposed of.

MONA MINES.—There is an important improvement here in Sidney's shaft going west at the 80 fathom level, where they have entered upon a rich piece of ore ground which bids fair to be the finest find during the time of the present company. If these shares were ever worth 15l. each, they certainly are better worth it now than when they stood at that price. Shareholders must not forget this has been without an exception the grandest and most profitable mine in the United Kingdom. It is stated upon reliable authority 4,000,000l. to 5,000,000l. were paid in actual profits. The deepest part of the mines is only 90 fathoms, that they are still immensely rich there is not a doubt, and the ore ground is being explored and laid open as rapidly as possible. In 1881 they sold nearly 16,000l. worth of mineral: this is comparatively small to what they will do in the future. There are only 8000 shares of 5l. each, their present value being about 5 to 5½, and worth looking after.

BWLCH.—Some fine specimens of ore can be seen at the company's offices, and the returns of ore can now be materially increased.

DEVON FRIENDSHIP.—The new stope in the 30 west, set at 2l. per fathom, is worth 3½ tons of arsenical mundie, and full 1½ ton of copper ore per fathom. Other places producing well.

BWLCH UNITED.—We are requested to state that Mr. Charles Hoar, merchant, Leadenhall-street, has joined this board.

WEST LISBURN.—Mr. E. H. Williams and Major Robt. Heane have joined the board of directors.

GOODEVERE.—The development of this young mine progresses most satisfactorily; and, although but commenced 12 months ago the machinery has been erected and the first sale of tin made, and the price (56l. 10s. per ton) shows that the quality is good. It is reported that a very rich lode exists about 9 fms. below the adit, and as the pumping machinery is just about completed a few weeks will prove this important point.

THE ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY.—The report and accounts presented yesterday at the meeting of shareholders were adopted. The meeting was one of the most satisfactory which has been held in connection with the company

for many years. The prospects of the mine are excellent. A report of the proceedings will appear in next week's *Journal*.

BRATSBERG.—The arrival of the Mary Owen, with 220 tons of 20 per cent. copper ore, is daily expected; the Via brings another cargo in July, and the Mary Owen is again chartered for a cargo in August. The prospect of a dividend this year is, therefore, not improbable.

ORGANOS GOLD.—An extraordinary rise (from 15s. to 40s.) has taken place in the shares of this company, and further improvement is looked forward to. The Buenaventura level, which is now approaching the rich ore ground cut in the Esperanza, is valued at 5 tons of mineral per fathom, yielding 5 ozs. to the ton—100l. per fathom. The Esperanza level, it will be remembered, was valued at 10 ozs. to the ton, or 150l. per fathom, so that a large quantity of rich ground is now being opened up. The machinery has nearly all been delivered at the mine, and the manager states that in accordance with his promise he will get the erection completed and crushing commenced by August.

SENTEIN.—The merits and resources of this property are now becoming more widely known, well directed efforts and experienced management is telling its own tale, as results can show. What with the large monthly returns and profits being made, and the fresh capital raised a little time ago, the concern ought now to attain a sound position. There is hardly a lead and blende mine in this kingdom making such large returns of mineral. The shareholders may now rest satisfied that their most sanguine hopes are being slowly but surely realised.

SOCIETY OF ENGINEERS.—The volume of the Transactions for 1881 has just been issued through Messrs. E. and F. N. Spon, of Charing Cross, and contains the inaugural address of the President (Mr. Charles Horsley), and papers on gas engines, by Mr. Charles Gandon; on illumination by means of compressed gas, by Mr. P. F. Nursey; on floating docks, the depositing dock, and the double power dock, by John Stansfield (awarded the Society's premium of books); on the prevention of smoke, by Mr. A. C. Engert; reports on vacation visits; on iron roofs, by Mr. A. T. Walmisley (awarded the Society's premium of books); and on the arrangement, construction, and machinery of breweries, by Mr. W. F. Kinsey. Carefully executed lithographs being given where necessary, the volume is a very good substitute for hearing the papers read.

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LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
June 23—Park.	30	210	2 6	Adam Eyton.
—Minera	50	9 10	0	Mining Co. of Ireland.
—ditto	80	9 10	0	ditto
—ditto	6	9 11	6	Walker, Parker, & Co.
29—Pandora	20	8 13	6	ditto
—East Roman Gravels	40	9 3	6	Walton and Co.

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
June 23—Minera	70	4 7	0	Dillwyn and Co.
—ditto	60	4 7	0	ditto
—ditto	80	3 14	0	Pascoe Grenfell & Co.
—ditto	70	3 15	0	ditto
—ditto	65	3 16	0	ditto
—ditto	50	3 19	0	Dillwyn and Co.
—ditto	50	3 19	0	ditto
—ditto	30	3 12	0	Vivian and Sons.
29—Pandora	25	1 12	6	ditto
—Tankerville Great Consols	—	—	—	—
Bog	60	4 7	0	—

BLACK TIN.				
Date.	Mine.	Tons c. q. lb.	Per ton.	Amount.
—Goodsvere	1 11	2 1	—	£36 10 0
—ditto	0 6	0 4	—	40 0 0
				12 1 5



## RICO SHARES.

The RICO SILVER MINING COMPANY OF COLORADO (Limited Liability), in order to provide funds for the further development of its mines, offers part of its working capital for sale.

ONLY NINE HUNDRED SHARES

NOW FOR SALE AT 10s. PER SHARE,

In lots of not less than 100 shares. When these 900 shares are sold the price of working capital shares will be raised to £1 per share.

The Rico district is but three years old, yet it possesses some of the richest gold with silver producing mines in America—for example, the Sinbad Mine is taking out quartz from which a fair sample of first grade ore, assayed by F. Claudet, Assayer to the Bank of England, yielded 84 ozs. gold and 1676 ozs. silver per ton: the second grade ore assayed at Rico, 5 ozs. gold and 210 ozs. silver per ton; the third grade ore assayed 2 ozs. gold and 63 ozs. silver per ton.

The Rico Silver Mining Company is engaged in a carefully managed business-like mining enterprise, which affords an exceptionally favourable opportunity for the realisation of very large dividends. It is NOT AN UNDERTAKING ORGANISED MERELY FOR THE PURPOSE OF MAKING PROMOTERS' PROFITS.

The President of the company is at present in England, and will take great pleasure in sending to investors the "Annual Statement of the Rico Silver Mining Company of Colorado," which affords full information concerning the company's property and purposes, as well as about the Rico district generally. This statement merits favourable consideration from all who think that mining for gold and silver ought to be a most profitable pursuit when judiciously entered into and carried on with skill and economy.

Address, J. J. WEST, care of L. D. Drake, Esq., 21, Abchurch-lane, E.C., London.

## Notices to Correspondents

INVESTMENTS IN SHARES—"A. W. T." (St. Andrews).—The risk is always in proportion to promised percentage of profit. To suppose that anyone would sell a business yielding 50 per cent. per annum at a price to yield more than a fraction of that percentage to a purchaser is absurd. If you have received 10 per cent. and 5 per cent. per annum for the two years you may consider yourself fortunate, and may hope for a continuance. Your remarks as to loans on heritable security are quite true, but it is evident that you preferred greater promises with their accompanying risks to the permanent 5 per cent. which you were obtaining. You have, however, now the advantage of experience, which is always of great value for future application.

OUR GOLD SUPPLY, AND CURRENCY.—The letter from Mr. Thos. Cornish shall appear in next week's Journal. It reached us too late for this.

RECEIVED.—"Metallurgist" (Next week).—"Shareholder" (Wheat Coates).—"An Original Holder" (J. W. S.).—"M. O."—"W. E." (Chester).—"R. W. B."—"Shareholder" (Appollonia).—"N. T. R." (Fremont-street, San Francisco). We are glad always to have such particulars, as being generally interesting information. All information respecting the Registration of the Turkish Debts can be obtained of Mr. G. D. Inall (of the Stock Exchange) through Mr. F. C. Mathieson, of Bartholomew House, Bank—"Shareholder" (Ebbw Vale).—"Shareholder" (Placerville Gold Quartz).—"W. J. T." (Newport) wishes for some information respecting Great Wheat Polgooth—"Old Reader" (Stalybridge).

## THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, JULY 1, 1882.

### SOUTH WALES MINERS' PERMANENT PROVIDENT SOCIETY.

This vigorous and prosperous Mutual Insurance Society has just closed the first year of its existence, and the statistics adduced at the annual meeting of the members, held at the Royal Hotel, Cardiff, on Saturday last, is not only of a most satisfactory character, but augurs well for the future. The report of the board of management reminds us that at the outset the efforts of the promoters met with the keenest opposition. The altered state of the law as to the liability of employers had severely strained the relationship of capital and labour in regard to the efforts for dealing with distress occasioned by accidents. It was never denied that cases might arise in which the employers' liability could be established by law, but it was contended that these would bear so small a proportion to the total number of accidents in the collieries that it was the plain duty of employers and employed to seek by mutual aid to cover the distress arising from all accidents. Such being the simple object of the society, it is cheering to find that its first year's operations have fully verified the hopes and expectations of the promoters, and worked beneficially to the mutual advantage of the master and men. On Dec. 31 last the society had enrolled 5684 members, the revenue amounted to 25221., and the expenditure to 13181., there being at that date an available balance of 12041. The good foundation laid in 1881 has, happily, been succeeded by a steady growth of the society during the present year, and at the date of the report the society contained no less than 9000 members and the accumulated funds exceed 50000. During the past year there were no less than 512 cases of disablement amongst the members and five members killed, placing five widows and five children on the fund for long-continued support.

The recent decision in the Court of Queen's Bench having upheld the legality of such associations—giving without hesitation or doubt the legal sanction for mutual insurance—we may naturally expect to see a rapid extension of such societies throughout the kingdom. We can see no reason why one should not be established in every mining centre, all amalgamated in one chief permanent association for dealing with distress arising from mining disasters. This is a question which we have often urged, and we are glad to find from the report of the meeting in question that the subject is engaging the serious attention of the board of management. We can only hope it will issue in complete success. With all our Acts of Parliament regulating our mines, with the most careful attention to ventilation and the general management of our collieries, we can never expect complete immunity from accident; and at any moment a disastrous explosion may occur, causing such a sacrifice of life as to completely drain the resources of any district society, but which could be promptly and efficiently dealt with by one general amalgamated association. Unity is strength in this respect as in everything else, and it is the safeguard by which both masters and men are enabled to cope with the responsibilities and dangers which the avocation in which they are all engaged render them specially liable to. The value of this mutual assurance is being rapidly recognised in the great Ferndale district—a district unfortunately rendered notorious by the number and extent of its colliery disasters. Although the branch has only been in operation some two months it numbers 700 members, and Mr. LEWIS DAVIES said at the meeting on Saturday last that he and his brother had every hope that shortly the whole of the 3000 in their employ would be enrolled. We trust that such may be the case, but the branch would be considerably strengthened, and the means of coping with any accident which might occur rendered far more efficacious, by an affiliation with other

societies, and all controlled under one chief association. There are other points from which we would urge the establishment of these mutual assurance societies and their amalgamation. Accidents often happen which nothing human can prevent, throwing heavy pecuniary responsibilities on the owners, and instances have been known where such occurrences have proved entirely disastrous to the proprietors, and which they have never been able to surmount. This should not be the case, and would not be so if the pecuniary responsibilities were thrown upon the accumulated funds of the general association. On the other hand, we gladly recognise in the spread of such societies the gradual growth of a spirit of self-reliance on the part of the working collier which it is as well to encourage. Public subscriptions pour in from a liberal public in case of explosions, and the wide-spread distress consequent thereon, but it is infinitely better, upon every ground, that the collier should feel that in the event of incapacity from accident he has the legal right to substantial subsistence from the funds of his own society than that he and his family should depend for support upon mere charity, come from whatever source it may.

### THE UNITED STATES AND THE IRON TRADE

American politics possess a certain interest for members of the British iron trade, inasmuch as the future demand for English rails in the United States is very largely dependent upon the continuance or otherwise of the Protectionist policy at present enforced by Congress. The Eastern States which produce rails and other descriptions of iron naturally desire to keep the American markets very much to themselves. But the case is altogether different with the Western States. If the Eastern States represent the producer, the Western States may be said to pose as the consumer. The interest of the producer is to sell at the most remunerative rates which he can possibly obtain; the interest of the consumer, on the contrary, is to buy at the lowest practicable price. If the present Protectionist duties enforced against British rails imported into the United States tell, as they are intended to tell, in favour of Eastern American ironmasters, they must be hostile to the interests of the Western States, since they increase the outlay attending the construction of railroads in these States, and so render the conveyance of passengers and goods a more costly matter than it otherwise would be. This is no mere imaginary or sentimental grievance. Politicians in the Western States have again and again chafed at the excessive cost of moving wheat down from the West to the Atlantic seaboard, and the Granger movement, the object of which was to secure easier rates and fares, will be fresh in the recollection of our readers.

A glance at any reasonably good map of the United States will show any dispassionate observer that from their very magnitude the Western States must become the future political masters of the American Union, always assuming that North, South, East, and West continue to make up a Republic one and indivisible. Let any one compare the size of such vast States as Minnesota, Illinois, Ohio, Michigan, and Nebraska—to say nothing of the immense regions at present known only as territories, but which will hereafter become Western States—with such comparatively small districts as the States of Vermont, Rhode Island, and Delaware, and he will at once see that the West fairly out-areas the East. No doubt, there are immense States in the South, but they possess less natural wealth, and their political energy appears likely to be less than that of the principal Western States. Under these circumstances, it being a well-known fact that population and area are important factors in any scheme of American political representation, the predominant power in the Congress of the future must belong to the West. Assuming, then, that we are right in our view, and that the inhabitants of the Western States must be induced by circumstances to lean in the direction of free trade, it is very possible that we may witness in a few years a great reduction in the at present Protectionist duties imposed upon British iron entering American ports. Under these circumstances, it is not too much to hope that our ironmasters may yet assist in the construction of a considerable extent of railroad mileage in the Western States. Every new town which springs up, and every farm brought under cultivation in the West, must increase the power of the Western States, and must enable them to enforce upon the Republic any policy upon which, upon mature consideration, they may set their hearts. Moreover, if a policy of Free Trade were at once adopted by the United States at the instance of the West it is not likely to be afterwards abandoned.

### NEW PROCESS FOR MAKING IRON AND STEEL DIRECT FROM THE ORE.

The system brought out by Messrs. THOMAS and GILCHRIST for making iron and steel direct from the ore, and which was noticed in a leader in last week's Journal, has met with a competitor, and in a part of the kingdom the least expected. The new invention belongs to Bull's Iron and Steel Company, Liverpool. The furnace is so constructed that it admits of a lining of the crucible and hearth capable of standing intense heat, and requiring very little weight, allowing of the metal being taken away in a fluid state at the time when the amount of carbon is exceedingly low. The lining consists of a concrete compound of freshly-burnt lime, or any substance having similar properties, with about 10 per cent. of silicious sand, mixed with tar, oil, or any other material that will evaporate from the concrete and escape through some openings made in the outer casing without causing the lining to crack or shrink. In addition to what is found at ordinary furnaces there is a calcining oven directly over the opening for the charge, which is open at the top for feeding the charge, and for the escape of the moist vapour given off during the process of calcination. By this means the ore and the flux are delivered into the furnace in a dry and highly heated state, so that the waste gases given off are comparatively dry, causing an intense heat by their combustion in the air-heating stoves. The principle of putting the ore into the furnace in a dry state is of considerable value, and it is claimed for it that there is an increase in the production of the furnace of about 20 per cent., without any increase in the cost of working. The waste gases from the blast furnace are led to the combustion chamber of the stove through passages into the conduit, which has a relief chimney for the surplus gases. The air is admitted into the combustion chamber through a safety valve at the top of the stove for the purpose of supporting the combustion of the waste gases, the flame passing downward through the stove which is filled with brickwork, and the surplus passes through valves at the bottom, which, by means of a culvert goes to the chimney shaft. The gases are utilised in a most efficient manner, the producers consisting of two chambers, one of them being filled with coal or coke, which is ignited and brought to a great heat by a blast of hot air, and the other is filled with fire-brick with a combustion chamber the same as in the air-heating stove, whilst the two communicate at the top. The carbonaceous material in the one chamber being ignited the hot air passes up into it, giving it a white incandescence, when the gases are led into a combustion chamber.

The air being admitted through a safety valve into the combustion chamber, the heat passes downwards, bringing the brickwork in it to an intense heat, when the gases pass through a valve and are carried away. Steam being admitted passes through, the intensely heated brickwork becoming highly superheated and passing down through incandescent carbonaceous material causes the formation of a gas, composed chiefly of hydrogen and carbonic acid. And as this goes over the incandescent carbon the carbonic acid takes up another equivalent of carbon, and forms carbonic oxide, which by the steam pressure is driven through the valve in the combustion chamber, which is opened into the gas main, and goes to the crucible of the blast furnace in a highly heated state. The stream of hot gas being kept up, is driven into the crucible without any forcing appliances. When the ordinary work of the furnace is in operation the gas in a highly heated state is forced into the furnace on the opposite sides of it, and the fuel is gradually removed until the metal is of the quality required. As regards the carbon percentage is regulated by the height of the charge, and is derived from the carbonic oxide in the gas which goes up from the hearth, so that the higher the charge the greater will be the amount of the carbon in the metal produced. It would appear if metal of almost any de-

sired description can be produced by the process, either for the foundry or the mill. To produce iron low in carbon all the fuel is removed and the height of the charge lowered in the furnace until the metal is of the desired quality. By taking away the coal or coke from the furnace it is removed from the zone of gasification, so preventing the great reduction in temperature which takes place in an ordinary blast furnace, when the carbonic acid produced by the combustion of the fuel is re-converted into carbonic oxide by contact with the incandescent fuel in the furnace. By using the gas and air in the highly heated state lessens the quality of air required to be forced into the furnace in order to maintain the necessary temperature, and so reducing the volume of nitrogen to a minimum. Before the silicon, manganese, phosphoric acid, &c., can combine with the iron in a metallic state they must be deprived of their oxygen, which can only be done by solid carbon, none of which will be used in the furnace. But carbonic oxide and hydrogen are the sole reducing agents by the new process, and as these gases will not absorb oxygen from silica, sulphuric acid, phosphoric acid, or oxide of manganese they cannot combine with the metallic iron produced. The use of gas in connection with the production of iron and steel is a most important item, as has been pointed out in the Siemens' system of furnace for melting, &c., and there is no reason why it should not be carried out in the ordinary blast furnace, not only for the economising of fuel but in the production of a better quality of metal. The new process appears to be one well adapted for effecting these objects, and in all probability we shall hear a good deal more of it before long, seeing that what our ironmasters have been constantly looking forward to has been the minimum of fuel for the production of a given quantity of metal.

### VENTILATING FANS FOR MINES.

It is now admitted that for all ventilating purposes in mines—drifts and tunnels—the fan is undoubtedly the best mechanical invention that has yet been tried. The question that is consequently frequently asked is—Which is the best fan, giving the largest amount of air at a minimum cost? Of course each inventor would speak in favour of his own machine, and would most probably point to published results. But we have had pointed out to us that such results are frequently most fallacious. One of the first ventilating machines in this country was brought out by Mr. STRUVE, in South Wales, and was put down at the Middle Duffryn Colliery, and answered very well, but it did not make any headway outside the Principality. Since then we have had the FABRY, LEMELLE, BRAM, WADDLE, GUIBAL, SCHIELE, and several others, and all of them are stated to have given a large amount of useful effect. From some experiments made it has transpired that the amount of useful effect of several fans given out by the users of them was the very reverse of reliable. A leading mining engineer in the North of England having been informed that the FABRY machine gave a useful effect of from 60 to 69 per cent., found by his means of arriving at a fair conclusion that it was not more than 35 per cent. The STRUVE was put down as giving from 60 to 69 per cent. of useful effect, but an eminent mining engineer on testing it states that the effect was only from 40 to 45 per cent. The WADDLE fan was tested a few years ago by two eminent mining engineers, and they calculated that it gave 61 per cent. of useful; but a more recent investigation by an able mining engineer in the North of England found that it was really only 39 per cent. In another case where a well-known fan was tested by three gentlemen, they said the useful effect was 62 per cent., but another engineer, who tried the fan in every possible way, reported that the useful effect was only 31 per cent. Mons. LEMELLE, in a paper published by him, claimed to have obtained 90 per cent., whilst Mr. COCHRANE, after considerable trouble and pains, only awarded him 35.50 per cent. It is, therefore, evident that some of the experiments were not conducted with any great amount of skill, or were greatly favoured by the inventors, who naturally enough took everything at all favourable to their own bantlings.

But it may be said that in testing ventilating fans, the condition of the mine in which they are worked is not taken into consideration, so that the widely varying results may be accounted for. Thus we are told that a Guibal ventilator might be erected at one mine and yield a very high useful effect, as much as 75 per cent., and it might be erected at another mine and produce over 25 per cent. As to the cost of ventilating fans, there is considerable discrepancy, but even here a few figures may not be out of place. One of FABRY's machines, with each cog or tooth 6 ft. 6 in. in length, and 5 ft. 7 in. in its projection from the centre, was propelled by a steam-engine of 12 in. cylinder and 2 ft. stroke, nominally 12-horse power, with engine, boiler-house, culvert, &c., cost only 3800. With the steam at 41 lbs., the number of strokes was 48, the quantity of air exhausted, 24,500 cubic feet per minute. The Guibal fan is undoubtedly a good one, but requires some rather massive foundations and buildings. Mr. COCHRANE, an engineer in the North, who has paid a great deal of attention to the question of mechanical ventilation, estimates the cost of a 36-feet Guibal fan at something like 7000. or 8000., which, of course, included engines, boilers, and foundations. At a colliery near Wigan, four small fans, by an inventor named GUNTER, have been in operation for some time. When they were first put up, only two were fixed, and from these they got 100,000 cubic feet of air per minute; but when two more were fixed, they obtained 170,000 ft. per minute, with a water-gauge of 1½ in. The fans only cost 1057. each, and the engine which worked them about 400. The engine worked 45 revolutions, and drove the fans by straps at something like six to one. These few facts will give some idea of fans and their cost, seeing that fan ventilation is the accepted fact on the part of our mining engineers as not only being the best but the most efficient and economical under every head.

### A HALF-YEAR'S COLLIERY EXPLOSIONS

During the first half of the present year there were no less than 14 explosions in coal mines in different parts of the kingdom, resulting in a loss of 188 lives, or nearly double the number of persons who were killed from the same causes during the whole of 1881. In nearly all the mines in which the explosions took place either blasting or naked lights were included in the systems of working. Singular to say, too, nearly one-half of the deaths took place in February, a month in which explosions are generally few and by no means disastrous. But in nearly all cases it would appear that there would have been no deaths had blasting not been in force and safety-lamps used. The first explosion during the year took place at the Risca Colliery, in South Wales, on Jan. 15, whilst blasting was being carried on, and the result was that four men were killed. On the 30th of the same month another man was killed in the Rhondda Valley, where blasting was also a part of the system of working. On Feb. 10th there was an explosion of powder at a colliery in Wigan, which killed one man, and on the following morning six men were killed at the Coedco Colliery, in South Wales, where the men worked with naked lights. Whilst the men were working a blower of gas came from a fissure in the side, and coming in contact with one of the naked lights, there was an explosion, which under the circumstances was inevitable. Had safety-lamps been used it is needless to say that the explosion in all probability would not have taken place, whilst the six lives would not have been sacrificed. The most fatal explosion of the half-year, however, took place at the Trimdon Grange Colliery, in Durham, by which 74 persons were killed. In this instance the jury recommended that no shots should be fired when the men were in the pit. Perhaps it would have been better had they suggested the doing away with the use of powder altogether, which is admitted to be one of the prime causes of most of the fatal explosions that have taken place for many years past.

At the Blairst Colliery, in South Wales, an explosion took place on Feb. 27, killing five men. There again naked lights were used by the 300 hands employed. An experienced fireman, as he was termed at the inquest, whilst examining the workings, allowed four men to accompany him with unprotected lights instead of leaving them in a safe part of the pit. No explosion of a fatal character took place during March, but on April 18 an explosion took place at Tudhoe,



Durham, by which 37 lives were lost. Shot firing was allowed at the colliery, and one was fired a short time previous to the explosion. The next day, at the West Stanley Colliery, in the same district, 13 men were killed by an explosion of gas. In this instance the Act of Parliament had been violated in a most material part, for shots were fired in a place where the gas showed on the lamp. The manager stated that the deputy should have reported to him that gas had been met with, but he did not do so, and the shot-firing went on as usual. Yet the jury in their verdict said "no one was blameable for the explosion." Comment is unnecessary in such a case as this, and certainly does not speak much for the present mode of selecting juries. At one of Earl Lonsdale's collieries, in Whitehaven, four men were killed by an explosion. The rules were evidently not rigidly enforced, for matches and a pipe were found in the pocket of one of the miners some time after the explosion. On May 1, at the Bruncliffe Colliery, in the West Riding, seven men were killed by a gas explosion, blasting having been carried on in the pit. Next day an explosion, or rather a series of explosions, took place in the Baxendale Colliery, at Atherstone, in Warwickshire, by which 31 lives were lost, including that of the owner, Mr. DUGDALE, the manager, Mr. BARKER, and several gallant miners who endeavoured to rescue those who were in the pit when the first explosion took place. On May 5, at the Udstone Colliery, Hamilton, three brothers were driving a drift, and broke through earlier than they expected, and liberated a considerable quantity of gas. On the 9th of the same month, at the Crown Level Colliery, in the Rhondda Valley, the owner, Mr. KELLY, went down to examine the workings accompanied by a man with a naked light. An explosion took place resulting in the death of Mr. KELLY. From this brief notice of the explosions that have taken place during the first half of 1882 it will be seen that shot-firing and naked lights, as we have before stated, were in force at the collieries where they took place, and so long as these are tolerated as at present we shall have explosions of a more or less fatal character.

#### THE COPPER TRADE.

During the quarter ending June 30, 1882, the quantity of copper ore, the produce of Cornwall and Devonshire, sold at the Cornish Ticketing, was 10,084 tons, which contained 585 tons 17 cwt. of fine copper, and realised 32,781. 2s. 6d., being equal to an average of 32. 5s. 0d. per ton of ore, and 55. 19s. 0d. per ton of copper in the ore. During the same period the British, colonial, and foreign ores sold at Swansea amounted to 1227 tons, which contained 85 tons 4 cwt. of fine copper, and realised 5668. 11s. 6d., being equal to an average of 47. 12s. 4d. per ton of ore, and 66. 10s. 11d. per ton of copper in the ore. The average produce of the ore sold at Cornwall Ticketings 5. 1 per cent., whilst that sold at Swansea gave an average produce of 7 per cent. From this it will be seen that the aggregate sales by ticket were 11,311 tons of ore, containing 671 tons 1 cwt. of fine copper, realising 38,449. 14s. The subjoined is a summary of the periodical sales at the Cornwall and Swansea Ticketings respectively. The ores sold at the Cornwall Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
April 6...	96 2 0...	6 1/2...	£3 16 0...	11s. 2d.	948	644. 11c...	£ 2,596 14 6
20...	99 19 0...	5 1/2...	3 2 6...	10 7 1/2	2890	369 11 ...	8,999 19 6
May 4...	96 18 0...	6 1/2...	3 1 6...	10 3	776	46 14 ...	2,392 17 0
13...	103 16 0...	5 1/2...	2 18 0...	10 6	2,001	109 7 ...	5,349 18 0
June 1...	97 13 0...	7 1/2...	4 18 0...	12 6	734	57 10 ...	3,597 8 6
22...	114 14 0...	5 1/2...	3 1 0...	12 2 1/2	2,735	138 6 ...	6,344 4 6
Total for the quarter					10,084	585 17 ...	32,781 2 6
Quarter ending March, 1882					10,005	595 8 ...	32,660 17 0
Quarter ending December, 1881					10,212	659 3 ...	36,745 11 6
Quarter ending September, 1881					9,846	679 8 ...	34,499 2 0
Total for the year					40,147	2519 16 ...	£136,686 13 0
Showing a quarterly average of					10,037	629 19 ...	34,171 13 3
Corresponding quarter, June, 1881					9,455	602 15 ...	29,798 16 0

he ores sold at the Swansea Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
May 30...	£92 17 2...	7 ...	£4 12 4...	13s. 3 1/4d.	1227	85t 4c...	£ 5,668 11 6
Total for the quarter					1,227	85 4 ...	£ 5,668 11 6
Quarter ending March, 1882					970	91 19 ...	5,876 5 0
Quarter ending December, 1881					2,012	225 6 ...	14,055 6 6
Quarter ending September, 1881					5,345	440 2 ...	24,130 12 0
Total for the year					9,554	842 11 ...	£49,730 15 0
Showing a quarterly average of					2,388	210 13 ...	12,432 14 0
Corresponding quarter, June, 1881					6,641	562 16 ...	31,903 12 0

**NEW ZEALAND EXHIBITION.**—The Phosphor Bronze Company have been awarded the Gold Medal for their fine collection of Phosphor Bronze Specimens at the New Zealand Exhibition.

**GOLD QUARTZ CRUSHING MACHINERY.**—At the forthcoming Royal Agricultural Show at Reading, Mr. H. B. Marsden, of Leeds, has arranged to exhibit (machinery in motion department, stand No. 271) in full operation his new patent pulveriser 12 by 3 in. at the mouth, requiring only four-horse power to drive, fitted with raff wheel, sieving, and elevating apparatus complete, for reducing gold quartz, cement, phosphates, coprolite, and ores of every description to any degree of fineness required, with greater rapidity, less power, and wear and tear than any other process in use. Also one of his new patent "Blake-Marsden" stone-breakers, 15 by 10 in. at the mouth, mounted on wheels to travel, and fitted with screening apparatus, crucible cast-steel connecting-rod and toggle-cushions to all wearing parts, patent reversible cubing jaws in four sections, &c., and capable of breaking 75 tons of road metal per day of 10 hours, with six-horse power to drive. All who are interested in breaking and pulverising any kind of material are respectfully invited to bring samples with them and to see them reduced.

**ACCIDENTS IN MINES COMMISSION.**—A meeting of the commission was held at the office of the commission, Victoria-street, on Thursday. There were present at the meeting Mr. Warrington W. Smyth, F.R.S. (the Chairman), Professor Abel, C.B., F.R.S., Mr. Burt, M.P., Mr. Lindsay Wood, Mr. Lewis, and the Secretary (Mr. Arthur Williams).

**THE NEW METHOD OF MINING COAL.**—The members of the Central Board of the National Association of Miners of Great Britain, accompanied by Mr. Jeans, secretary of the Iron and Steel Institute of Great Britain, paid a visit to the Shipley Collieries, Derbyshire, for the purpose of witnessing the working of the coal by the new method recently adopted at that place. The Central Board was represented by Mr. Burt, M.P., President; Mr. B. Pickard, Vice-President; Mr. Nixon, treasurer; Mr. Crawford, secretary; Mr. Wilson, Mr. Foreman (Durham), Mr. Cowery (Yorkshire), Mr. Tune (Cleveland), and Mr. White (Northumberland). The party were shown the system by which the cartridges are produced, and were then taken to a stall 100 yards long, where large blocks of coal had been pressed or brought down by means of the cartridges, which are inserted and slightly rammed in shot-holes, which are drilled by means of a light boring machine, and an iron tube about 1/2 in. in diameter. After the cartridges have been enclosed water is applied, and the water generates steam upon the lime, of which the cartridges are largely composed. The pressure of steam generated by the usual charge of seven cartridges is 2850 lbs., and in this way the coal is forced from its bed, and is found ready for filling in large blocks by the colliers. Whilst the gentlemen were present several drill-holes were put into the coal for a depth of 1 yard 3 in., the time occupied in drilling the hole being 6 1/2 minutes. Mr. Foreman, in order to satisfy himself, took the drill in hand, and worked it quite easily. Four cartridges were put in each hole, and water applied, and in less than 20 seconds the coal came away in large lumps. The gentlemen who were present spoke highly of the system, and Mr. Pickard believes that the method may be safely applied to the working of seams such as the Stanley Main bed, which requires lifting, and entails a good deal of manual labour. A trial has been made at the Thorncliffe Collieries, and it is said to have been very successful. So far as the system goes with

regard to safety, it will doubtless be adopted in Yorkshire mines, where gas is found in vast quantities and outbursts from the floor are by no means rare; and it is believed that the Central Board will direct the attention of men working in fiery mines especially to the importance of the system, which is said to be less costly than the old and dangerous method of blasting by means of gunpowder, with which several of the large explosions in Yorkshire have been closely identified.

**THE HALKYN DEEP LEVEL DRAINAGE COMPANY.**—It is satisfactory to hear that during the past week a large quantity of water has been tapped in the workings of this company, and a conclusive proof that there is a connection between these workings and the Rhosmor Company's mine is that the water in the latter has gone down upwards of 9 ft. since the additional flow commenced in the drainage level. This will be specially interesting to shareholders in both companies, and will show to all interested in mining enterprise that the scheme for draining the Halkyn district by means of deep adit levels is already in a fair way to be successful.

#### INDIAN GOLD MINES.

TO THE SHAREHOLDERS.

The following correspondence which has just taken place between Capt. A. T. James and myself, although referring more particularly to the Indian Consolidated Gold Company, will no doubt be specially interesting to the proprietors in all Indian gold mines at the present moment, as it gives a complete and emphatic answer to the doubts which have been so frequently raised as to the reality of gold mining enterprise in the Wynaad. The practical knowledge gained by Capt. James during many years' experience of gold mining in Australia, added to that now acquired by many months' residence in the Wynaad, enables him to speak with authority, and, therefore, renders his opinion specially valuable.

WILLIAM ABBOTT.

16, Tokenhouse Yard, London, E.C., June 24, 1882.

DEAR SIR,—Availing myself of your return to England, after having been engaged in arranging the preliminaries for work on the various estates of the Indian Consolidated Gold Mining Company in the Wynaad, I am anxious to learn from you the full expression of your views upon the present position and prospects of that enterprise.

In view of the extensive practical experience which you have gained in connection with gold mining in Australia and other parts of the world for many years past, an opinion from you, at the present time, as to the prospects of similar industries in India would be especially valued by me, as well as by all who are interested in their development.

You are, perhaps, aware that notwithstanding the vast amount of testimony which has been brought forward during the last two years as to the existence of gold in India, and the prospect of the mines being worked successfully, many adverse reports have been industriously circulated expressing the greatest doubt upon both points. On the other hand, the utmost confidence prevails amongst those who have been associated with these properties from the commencement that their most sanguine hopes will soon be realised.

In view of the existence of such variable opinions I am desirous of getting the very fullest information possible, and, therefore, beg that you will favour me with a short report with reference to the Indian Consolidated property, and state whether you believe that gold exists in sufficient quantities to justify confident anticipations as to the successful working of the reefs.

If you can favour me with this at an early date, giving as full particulars as possible and stating your opinion as to the extent, number of reefs, &c., I shall feel greatly obliged.

WILLIAM ABBOTT.

Capt. Abraham James, Redruth.

Redruth, Cornwall, June 28, 1882.

DEAR SIR,—In reply to your favour of the 24th inst., soliciting my opinion on the prospects of the Indian Consolidated Gold Company (Limited), I beg to hand you the following brief remarks:—

The prospects of this company are very good, and, in my opinion, second to no other company on the Wynaad; this opinion is based on the following facts:—

In the tunnel of Balcarres No. 5 reef, which is now being driven on the course of the lode for upwards of 20 fms., the lode or reef is from 9 to 15 ft. wide. Every sample from this drive will produce small quantities of free gold and fair quantities of auriferous pyrites. The lode has been laid open to view for 50 fms. above this point and about 10 fms. below it, where the lode may be seen at a glance, varying in thickness from 9 to 15 ft. It has a uniform underlie north into a hill about 300 ft. high; it presents a masterly and imposing appearance. In places rich pockets of free gold are met with, and although the average quality may not at first exceed from 5 to 10 dwts. per ton yet I am confident that as soon as the reduction works are complete, and all necessary arrangements made to work economically the result will be perfectly satisfactory.

I must not forget to mention another feature in connection with this important property which ought to inspire the shareholders with confidence, and that is that this masterly lode can be traced at surface for more than a mile in length, and at a depth of 70 fms. from the highest point. Permanency and success may be fairly anticipated in the further development of this great lode. Its composition is also very good—quartz, oxide of iron, and iron pyrites, and, as before stated, free gold. The enclosing rock is gneiss, of a favourable character, and the geological position is most satisfactory.

I need not trouble you with further detail, and will now conclude this letter by stating that, although the prospects of the Balcarres reef are so encouraging, yet there are other reefs on the estate well worthy of immediate development. Henrietta reef is from 6 to 12 ft. wide, producing small quantities of free gold, and may be regarded as a mine in itself. Palmerston reef is one also of great promise and ought to be vigorously prosecuted.

I am thoroughly satisfied that gold exists in India, and that some of the veins will prove more productive in depth than anything yet found near the surface.

I am also convinced that the prospects of profitable gold mining on the Wynaad are quite equal if not superior to those presented at Ballarat, in Australia, in the early days of quartz mining.

I am, dear Sir, your obedient servant,

William Abbott, Esq.

A. T. JAMES.

#### GERMAN OPINION ON THE CHANNEL TUNNEL.

A valuable and patriotic service has been rendered to England by Mr. T. J. Denne, of Red Hill, in translating from the *Militär Wochenblatt* the exhaustive and thoughtful article—A German Opinion on the Projected Channel Tunnel, by a German Officer—of a friendly foreign expert critic concerning a project which, whilst not even promising more than the minimum of utility, involves the absolute certainty of enormous monetary loss to every capitalist who may be thoughtless enough to embark his money in the scheme with the notion that it will earn any profit whatever upon the capital required to make it. Many can now recognise Palmerston's wisdom and foresight in offering strenuous opposition to the Suez Canal, although at the time his opinion on the matter was regarded as antiquated and absurd, and it is not improbable that at present both Turks and Egyptians heartily wish that the fatal concession which permitted its construction had never been granted. The Channel Tunnel, should it ever be constructed, will prove a greater evil to England than any other scheme in which she has been engaged. The "German Officer" does not merely write adversely to the tunnel upon scientific military considerations, but declares that he takes an interest in the welfare of the English people amongst whom he has lived for a long time, and whose military and naval development he has followed and discussed for many years in the *Militär Wochenblatt*; his papers on Military Opinion on Afghanistan and Central Asia, and on Russia's Consolidation in East Asian Waters being alone sufficient to establish his reputation as an authority upon such subjects. The English military system has, as he points out, the disadvantage that the army has to a certain extent to be formed during a war, so that the fight cannot be commenced with energy

and quickly by a few but strong blows carried into the enemy's country and brought to an end. For this reason a battle between a state with a standing army and one with a militia system is an unequal match. England's inconsiderable army does not command peace, neither do large armies, as now the logic of the world wrongly seems to consider, and, referring to England, he adds that the greatest sacrifices from a military point of view are offered up by the richest country in the world to the Moloch of economy, they play the terrible game of chance—risk even a national misfortune—and think they can risk everything, being safe in civil liberty. The adage, precaution is the mother of wisdom, is valid not only in civil but also in political and military existence. Trustworthiness resting on no basis will be punished, as history itself teaches.

The "German Officer" takes the same view that has often been expressed in the *Mining Journal*—that the engineering difficulties are trifling, such indeed as could be overcome by the merest tyro, unless water be cut by the intersection of a fissure establishing a connection between the tunnel and the sea, in which case the highest engineering science would be commercially worthless. Assuming the making of the tunnel to be practicable, he remarks that as England, in a warlike entanglement with one of the great continental powers of Europe would nearly always require to defend its own country, it would be absurd to build a new approach for the enemy, as the tunnel would be a new important factor in the problem of warding off a hostile attack. He considers the well-founded doubt arises whether Parliament would grant the large sums required in order to make Dover, that is to say, the anticipated entrance to the Channel Tunnel on the English side, from a place of not much importance to a fortress of the first-class, to arm it, and always have a strong garrison there ready for all emergencies. His observations upon destroying or obstructing the tunnel in case of attack are particularly amusing. Chance, he says, nowhere plays such a great role as in war. He shows, too, that catastrophes happen in spite of every human attention and anticipation—for example, the sinking of ships having watertight compartments because at the moment of collision the doors are accidentally left open, the crew lose their head at the decisive moment, the safety apparatus is not ready and cannot be used at the proper time. An event, he adds, which happened in the war of 1870-71 will suffice to prove it. The French had mined the largest part of the tunnel through the Vosges, and all was ready for blowing up. They forgot to blow up the mines, and not a single tunnel was closed, the result being that the Germans could gain a railway from the beginning which was so important to them for the good of their army; the strong barrier of the Vosges was broken.

Under certain circumstances then, on account of the Channel Tunnel, all help from the fleet for defending the native shores can be made impossible, because as soon as the enemy has taken possession of the tunnel it is impossible for the most powerful British squadron to prevent the hostile army from flooding England and seizing the country, because the possession of the tunnel alone ensures to the French the connection with the base of their operations. From that moment, in which such a tragic fate overtakes Old England, every help from the navy is paralysed, and tactical and strategic movements between two very unequal opponents would begin. The enemy would be spared from forcing a landing after a sea battle unsuccessful for the English, but would without having vanquished the swimming walls and outworks suddenly be in the interior of the fortress. And it is shown, moreover, that the possession by England of the French end of the tunnel would be by no means an equal calamity for France. The English shore, protected up to now by Nature and the navy, has made the nation too sure and peaceable, but this may lead to the sanctioning of the tunnel, and to the loss of the battle and of her position as a first-rate Power.

#### THE ELECTRIC SUN LAMP.

It was noticed in last week's *Mining Journal* that invitations had been issued by Mr. Louis Clerc, of Brussels, to a public exhibition of the Lampe Soleil in the vaults beneath the Royal Exchange, and on Saturday a large number of gentlemen attended and highly eulogised the results obtained. Two of the vaults had been temporarily converted into a drawing and reading room respectively, in order to show the adaptability of the lamp to the lighting of interiors. In the drawing room were two lamps suspended from the roof, which, being low, made the trial of the lamp more crucial than would have been otherwise, and in the reading room one lamp, concealed in flowers and inverted so as to throw the light in an upward direction, reflecting it downwards, and diffusing it at the same time. The power of each of these three lamps, together with a fourth one which was lighting the engine room, was estimated at 1400 candles. A Gramme machine of the self-exciting type and of the smallest kind was driving these four lamps. Had not these been more than sufficient for lighting the spaces devoted to this demonstration, two more lights of the same power, making six altogether, could have been driven from the said machine. The dynamo machine was working in two circuits. The power was obtained from an Otto gas-engine of 12 horse-power, but as this had been provided for driving two dynamos and as one of these was found to be more than sufficient, no estimate of the power required was made.

The details of the construction of the lamp were given in the *Journal* of May 20; but the precise nature of the light will perhaps be more popularly expressed by stating that it is really the Drummond or lime light with electricity substituted for the oxy-hydrogen flame—hence the very brilliant effect produced. In the construction of the lamp two carbons, making between them an angle of 40°, slide by their own weight in a rectangular block formed of a series of refractory stones. The arc jetting between the extremity of the carbons, licks on the inside the aris of a dihedric angle of marble, open on the lower part, or on the side of the block, and the luminous rays are projected in a conical and well-spread stream, either vertically or laterally, according to the position of the opening of the angle. For the purpose of lighting the carbons are united by a carbon paste bridge, which having served for the passage of the current is destroyed and gives place to the arc. The light is produced equally by the arc itself and by the incandescence of the marble transformed into lime by the heat of the arc. The arc follows the refractory matter and retains its concave, so that the illuminating power of the light is always kept at the minimum. It was pointed out that besides the incandescence to which it gives rise the refractory material has also the advantage of opposing the extinction of the lamp, and of contributing to give it greater steadiness. The extinguishing of a lamp may, it must be remembered, be caused by the cooling of the arc, and this cooling is prevented by the incandescence of the marble block. It is for this reason that there can be obtained with the lampe-soleil an arc up to 4 metres and more long, which is practically impossible with every other form of arc burner. As to the want of steadiness so often complained of in the case of electric lamps, it results, in those regulators in which the distance between the extremity of the carbons is constant, from the displacement of the arcs along the carbons. In the lampe-soleil the arc being guided these displacements cannot take place, and the steadiness of the light is perfect. With the large carbons employed in the lampe-soleil the consumption is very small, hardly 8 millimetres, or about 1/2 in. per hour for the two carbons, so that the light will be maintained without attention for a very long time with comparatively short carbons, especially as means have been found for rendering the refractory material used thoroughly reliable.

The advantages claimed for the lampe-soleil are that the light is absolutely steady, and of a beautiful colour, completely resembling the sun; and in this particular entirely differs from all other arc lamps, which give either a blue light, and from the incandescent lamps, which give a red light. And a further point urged in recommendation of the system is that the light is free from the objections usually put forward against electric illumination generally. Thus, the sharpness of shadow entirely disappears with the lampe-soleil, which by reason of its great width of incandescent centre obviates this objection. The importance of this point is very great, especially in factories, picture galleries, and all purposes where an absolutely shadowless light is essential. With regard to the variations in the quality of the carbons, by which is meant the necessity which other electric lights have of absolute purity in the carbons used, the cost



of which is proportionately high. This in the lampe-soleil is of consequence, as it is adapted to burn ordinary gas carbons of inferior quality, which can be obtained in all parts of the world at a very trifling cost, without in any way interfering with the efficiency of the light. The variations of the rate of speed of the engine which greatly affects other lights, scarcely affects the lampe-soleil which can withstand variations as high as 25 per cent. without affecting the light, whereas other systems are completely disturbed by a variation of 10 per cent. This is caused by the block remaining in its incandescent state for a perceptible time after the engine absolutely stops, this time extending as long as five minutes before the light fully dies out.

As to the commercial value of the system it will suffice to refer to the statement that the cost of fitting up the light in a factory or building is considerably less than any other system, and that, owing to the cheapness of the lamps and to the cheapness of the carbons used, and the small quantity of carbon required, the yearly cost of the light is very low, being fully 25 per cent. below other systems. The patentees having also secured the right to construct and use the Maquaire and Lachaussee dynamo machines, which are more easily managed than any other, thorough installations of the electric light by their system can be fitted up considerably cheaper than by any other system. As to the working expenses, it appears that a light giving 1200 candle-power could be supplied to customers at a cost of not more than 4d. per hour, and yet leave a very large profit (exclusive of the cost of motive-power, which is the same as for any other electric light), as was clearly demonstrated at the Paris Exhibition. It is claimed, moreover, that the superiority of this system is such that it will enable central works to be established for the diffusion and the supplying of electricity in the same way as the central gas works supply gas to the streets and private houses, and having the great advantage—which is believed not to be possessed by any other system—of being able to supply light direct any distance, even for many miles from the central station, without the intervention at short distances of other lights, renders the sun-light the most useful and practical of any system yet invented.

#### THE BAXTERLEY COLLIERY DISASTER.

The Government enquiry into the cause of this explosion, which resulted in the death of 31 persons, was concluded on Thursday. Among the witnesses examined was THOMAS WALKER, who had charge of the pumping-engine placed in the pit 16 days before the explosion. He said the coal caught fire soon after the engine was placed there, and he reported it to Parker, the manager, who saw the fire. The fire kept spreading, and a hose was used. It would break out again after it had been left a short time, and water was almost continually playing on it. Mr. Gillett came down, but his attention was not called to it. Parker knew all the time it was on fire that the end of the funnel attached to the engine was not more than 2 ft. from the coal, and the flames from it would reach the coal above. Witness had actually seen the flames from the funnel playing on the coal.—JOHN WEBSTER, engine driver, said the coal was on fire the first time he went to the engine.—JAMES LEWIS, ostler, who had charge of the horses in the pit, said that on April 29 he saw some fire in the roof above the boiler. It was well known in the colliery that the coal was on fire.

Mr. GILLETT, consulting engineer to the colliery, spoke to having ordered Parker to place brickwork around the engine in the pit; but when he went to the colliery on April 26 he found, to his great surprise, that it had not been attended to. He asked the manager why it had not been done, and Parker answered that he had been unable to put in the brickwork on account of water rising in the level. Witness examined the place, but saw no fire. Parker assured him the place was perfectly safe, and that he need not be apprehensive of danger. The working of the mine was entirely at Parker's discretion, and he regretted he was not alive to speak for himself. Witness believed the fire was still in existence, and could not say how long must yet elapse before the deep working could be investigated. The fire might have been confined to a small compass had the men not been in the pit; but, as it had remained open for 36 hours afterwards, he thought it must have obtained a considerable hold. He advised that the pit should not be reopened too soon.—Mr. SMALLMAN, mining engineer, expressed an opinion that it would not be prudent to re-open the pit until it had been closed three months.—Mr. EVANS, Chief Inspector of Mines, said some months must yet elapse before the pit could be reopened.

The CORONER said the entombed colliers, to use the least offensive expression, had lost their lives through the indiscretion of one or more in authority. He did not impute the slightest omission of duty or want of proper supervision on the part of the late Mr. Dugdale or the colliery trustees. He regretted he should again have to trespass upon the jury's time, for they could not at this stage utter censure or criminally convict for omission or negligence of duty, if such existed in their opinion. The time for that would not arrive until one or more of the entombed men could be identified. He asked them to consider their verdict as to how the unfortunate rescuers lost their lives, leaving the culpability or censure of some person or persons to a future investigation after the pit had been re-opened.

The jury, after having retired for a short time, returned a verdict to the effect that the explorers whose bodies they had viewed came to their deaths as described by the medical evidence. They also considered it an error of judgment to have placed the engine and boiler so far from the bottom of the shaft in the return airway, and in such an improper and unprotected matter, which subjected the pit to great risk, and was the cause of the fire. They added that the deputies did not follow their printed instructions, for had they done so the true condition of the pit would have been revealed, and the explosion and loss of life thereby avoided.

#### THE METEOROLOGICAL SOCIETY.

The closing meeting of members for the present session was held on Wednesday, at the Institution of Civil Engineers, Mr. J. K. Laughton, F.R.A.S. (president), in the chair, when the following papers were read:—1. "A New Metal Screen for Thermometers," by the Rev. F. W. Stow, M.A., F.M.S. This screen differs from the ordinary Stevenson in the following respects:—(1), it is somewhat longer; (2), it has a single set of double zinc louvres; (3) it is particularly closed at the bottom to cut off radiation from the ground. The advantages claimed for the use of zinc louvres are: (1). The conductivity of metal causes the heat derived from the sun's rays to be distributed over every part of the louvres.—(2). The louvres being much thinner than those of wood, the circulation of air through the screen is not only much greater absolutely, but much greater also in proportion to the bulk of the louvres.—(3). The zinc louvres, therefore, are much more sensitive to changes of temperature than wooden ones. Comparative readings of thermometers in this screen, along with those in an ordinary Stevenson screen were made during the summer of 1881. From these the author is of opinion that the Stevenson becomes unduly heated when the sun shines, but this may be as much due to its small size, as to the material of which the louvres are made. The thermometers in it are only 3 to 5 in. from the louvres at the back of the screen, against 7 to 8 in. in the zinc screen. The roof, too, is single, and the box is open at the bottom. The author also says that there is no need to condemn all wooden screens, but there does seem to be some reason to think that screens with metal louvres might be better.—(2). "On the effect of different kinds of Thermometer Cribbs, and of different exposures in estimating the diurnal range of temperature at the Royal Observatory, Cape of Good Hope," by David Gill, LL.D. F.R.A.S. Meteorological observations were commenced at the Cape Observatory in 1841, when the thermometers were placed in a well ventilated crib, before a south window, through which they could be read. The buildings were, unfortunately, burnt in 1852. A small wooden house with double roof, and affording a free passage of air, was then erected on the site of the old Meteorological Observatory. The instruments were placed in the middle of this building, and observations were recommenced on the same plan as before, and continued until the end of August, 1858. On Sept 1 the thermometers were transferred to a crib erected in the south-west window of the transit circle room. This crib is well ventilated, except

on the side next the transit room window, but the great mass of solid masonry which exists in the immediate neighbourhood of the thermometer appears to seriously effect the range of temperature. For many years a Glaisher stand has been in use, and at the end of 1880 the author caused a Stevenson screen to be erected in its immediate neighbourhood. In this paper the author gives results of observations made in the window, Stevenson and Glaisher screens, during the year 1881; from which it is evident that the exposure of the thermometers in the window crib gives a distinctly smaller and on the Glaisher stand a larger, daily range of temperature than in the Stevenson screen.—(3.) "Some account of a cyclone in the Mozambique Channel, January 14—19, 1880." By C. S. Hudson.—(4.) "Rainfall of Frere Town, Mombassa, East Coast of Africa, 1875—1881." By R. H. Twigg, M.Inst.C.E., F.M.S.

#### MACHINERY EXHIBITS AT READING.

At the forthcoming exhibition of the Royal Agricultural Society at Reading much of the machinery shown will be as applicable to mining and general industry as to agriculture, and in this category special attention may be directed to the machinery of Messrs. Robey and Co., of Lincoln, Stand 274. The vertical engine and boiler combined is remarkable. The simplicity of the design of this engine, the solidity of its construction, and great accessibility of all its parts for adjustment examination. The boiler is of Messrs. Robey and Co.'s patent tubular construction and possesses many advantages over all others of its class. The circulation of the water in this boiler is perfect, and thus the generation of steam is not only facilitated, but incrustation is effectually prevented. The water having parted with its steam in the upper part of the boiler returns down the side, and having suddenly to change its course at the bottom it there parts with any mud it may have in suspension, by which mud may be allowed to accumulate in the large space provided for it at the bottom of the boiler and from which it can be easily removed at intervals through the mud holes. The circulating tubes being straight also permits any mud which may be in suspension to fall freely through them when steam is down, so that they are always kept in a perfectly clean condition. The flue tubes are so disposed that the product of combustion on its way to the chimney must strike upon and pass around the water tubes, thus breaking up the flame and abstracting the maximum heat therefrom, instead of allowing it to pass away wasteful up the centre flue in a body, as is the case with other boilers. The effect of this patent arrangement of tubes is to admit of the use of a firegrate of much smaller size than ordinarily and an economy in fuel hitherto unapproached by any other vertical boiler is thereby attained.

Messrs. Robey and Co. likewise exhibit specimens of their superior Portable Engines, which possess many points of excellence. Since last referred to Messrs. Robey and Co. have made some important improvements in their portable engines, especially in connection with the cylinders. These are of course steam jacketed, and not only the cylinders but also slide-valve faces are made of a mixture of the purest, toughest, hardest metals that can be procured. The improvement recently made consists in the manner in which the steam is taken into the cylinder and in the method of controlling the rate of admission. Instead of the usual arm throttle valve Robey and Co.'s engines are now fitted with a double-beat equilibrium valve which with a very small movement gives a wide range of admission. This valve is controlled by a very sensitive high speed governor, and as it works in equilibrium the slightest variation in speed of engine is at once felt and counteracted upon and the utmost regularity in speed is secured. The importance of this for many operations for which these engines are used cannot be overestimated. The details are worked out in a very neat and compact manner, and not only insure the efficiency but at the same time improve the appearance of the engine. This engine is supplied with expansion valve with variable cut-off from  $\frac{1}{2}$  to  $\frac{3}{4}$  of stroke, and also a very efficient water-heater.

#### NEW ORE ROASTING FURNACE.

A new form of furnace composed of three revolving cylinders of different diameters and lengths, longitudinally connected and communicating with each other, having a fire-box at each end and suitable dust chambers, and provided with novel internal stirring or pulverising devices, with internal air supply pipes, and with external automatically operating salt box and ore discharge pipe, is being introduced by Messrs. WITHERELL and VARY. The furnace has two cylinders; that of least diameter and greatest length, designed to be about 12 ft. long and about 4 ft. in external diameter, the cylinder being constructed in one or more flanged sections bolted together. The shortest cylinder is designed to be about 2 ft. long, and of about 6 ft. external diameter, bolted through its flanged end to the flanged end of the longer cylinder; and third, the cylinder of greatest diameter, designed to be about 4 ft. long and about 80 in. in external diameter, bolted by its flanged end to the opposite flanged end of the short cylinder. This furnace is provided with suitable encircling rings or tires, that bear on supporting anti-friction rolls, whose shafts are journaled in supporting frames, the rolls nearest the ends of the furnace having annular flanges to prevent longitudinal movement of the furnace. Encircling the short cylinder is a toothed gear, meshing with a small cog-wheel on the drive shaft. This furnace is designed to be set at about an inclination of 1 in. in 6 ft., inclining downward from the smaller to the larger end.

The longer cylinder is longitudinally corrugated, forming a series of parallel and alternate depressions and projections on the inside. Along these projections are bolted angle irons, extending from one end to the other of the cylinder, and forming, in combination with the depressions, a series of buckets for lifting or stirring the ore as it passes through the furnace, the buckets lifting the ore and letting it fall through the flame or hot air passing through the furnace, and exposing it at the same time to the air admitted through the air pipes that will presently be described. The depressions are designed to be about 4 in. deep. The cylinder of greatest diameter is also longitudinally corrugated in the same manner as the long cylinder, and has angle irons secured along its inward projections, and extending partly over the depressions, forming buckets for lifting and letting fall the ore to expose it to the furnace reactions. Fire brick or angle irons are used to project the falling ore into the body of the furnace, also covering the space between the buckets and protecting the shell of the furnace from the action of heat, and also to project the falling ore farther into the body of the furnace. In the case of the cylinder of greatest diameter the corrugations terminate a short distance from the head, thereby leaving the cylinder at that point of the diameter of the outside of the buckets, forming a gathering trough for the ore. To an opening in this trough is attached a peripheral discharge pipe provided with a valve.

As the ore is fed into the furnace it falls to the bottom, is caught in buckets, and is carried up. After passing the central line of the cylinder it begins to fall in thin sheets, and continues to fall regularly until each bucket in turn becomes emptied. In falling the ore passes through the air and heat introduced into the long cylinder, and strikes upon the bottom of the cylinder a little in advance of its starting point, depending upon the inclination given to the said cylinder. The ore is then again carried up and falls, and this process is continued until it falls into the shortest cylinder. In its progress through the long cylinder it becomes gradually heated, and the sulphur and other volatile or inflammable substances contained in it are either burned or volatilised and the ore oxidised. Near the end of the long cylinder the ore is met by an increased temperature from the shortest cylinder and fire flue, by which the sulphates still remaining in the ore are decomposed. The salt or other chemicals introduced here unite in regulated quantities with the ore at each revolution of the furnace, and together they pass into the shortest cylinder, and are there thoroughly mixed and ground together by the action of the balls, and any agglutinated lumps of ore are thereby pulverised, and any remaining excess of sulphur or other volatile substance escapes. The ore then escapes from the action of the balls through the side orifices into the buckets in the cylinder, &c., where, when chlorine gas is used, the ore is exposed to its action, and if chlorine gas is not used the ore is completely oxidised by the action of the air admitted through a pipe. The ore is carried by the

action of the buckets of the cylinder of greatest diameter to the gathering trough, whence it escapes through the discharge pipe.

#### ELECTRIC ILLUMINATION OF RAILWAY TRAINS.

What is described as an improved organisation of instrumentalities for producing the lights which are required on board of railway trains for illuminating the track at night in advance of the locomotive, and for exhibiting a warning signal in the rear of the train, or for other analogous purposes, has been patented by Mr. E. T. STARR, of Philadelphia, U.S., who proposes to make use of apparatus for generating or producing electric currents by the conversion of mechanical energy derived from the motion of the train itself into electricity, store a portion of the electricity so produced for use at such times as the train is not in motion, and apply the same to the development of light from electric lamps placed at suitable points upon the train. There is a dynamo attached to the axle and a storage battery, both beneath the carriage, the necessary switches being provided to place the current under control.

When the apparatus is properly connected and arranged, the switch buttons being closed upon the plate, and the locomotive and train being in motion upon a railway, the dynamo electric generator is kept in continuous action by the revolution of the axle of the tender, with which it is mechanically connected, and a powerful electric current is generated thereby, which having first charged the accumulator or storage battery to its utmost capacity divides at a certain point, and passes over the circuits, leading respectively to the head light and the tail light, the current being divided between these two circuits in the ratio of their respective resistances in accordance with the well known laws of electric conduction: thus a powerful illumination is produced upon the track in advance of the locomotive, while at the same time, if desired, an equally powerful light may be exhibited at the rear of the train, although he remarks that in general the last named light may be of less volume or intensity than the head light as is well understood. Either of the lamps may be disconnected from the storage battery and generator at pleasure by means of switch buttons, which are under the immediate control of the proper official.

It is desirable and necessary at night to exhibit a distinctive light at the rear of each train as a danger signal, and this may be accomplished by screening the light giving-portion of the electric lamp by a transparent coloured glass. He has, however, devised a much more effective organisation for this purpose, which may be employed either with or without the screen of coloured glass; this consists essentially of a mechanical circuit breaker placed in the electric circuit of the tail lamp, which circuit breaker is actuated continuously and automatically by the train itself while in motion, thus producing an interrupted or flashing light. He prefers to employ for this purpose a toothed circuit breaking wheel or mechanical interrupter, which is caused to rotate continuously by means of a band or other equivalent device connected with an axle of the rear vehicle of the train. A spring finger contact rests upon the circuit breaking wheel, and is electrically connected with one wire, while the wheel itself is in like manner connected with the other wire; thus it will be obvious that so long as the train is in motion the circuit of the tail lamp will be alternately closed and broken, and the lamp will emit a continuous series of luminous flashes, which will form a most efficient danger signal, and one moreover which will indicate to the engineer of an approaching train whether the train bearing the signal is standing still or is in motion, and if in motion at what rate of speed it is moving. The circuit breaking device which has been described may with advantage be provided with a switch or button whereby it may be shunted or cut out when desired, so that a continuous light may be exhibited.

In making practical use of the improved apparatus it will be found advantageous to charge the storage battery (which should be of as large capacity as possible within the limits of space rendered necessary) by placing it in circuit through the switch with the generator at such times as the power and momentum of a train requires to be checked, as for example in approaching a station or running down an inclined plane, as in that case the dynamo-generator will act as a brake to check the momentum of the train, and the retarding force, instead of being converted into heat and wasted as in the application of the ordinary friction brakes, will be converted into electricity and stored in the accumulator, from whence it may be drawn as required for illuminating purposes.

#### ELECTRIC STORAGE AND ELECTRIC ILLUMINATION.

A simple apparatus for use in connection with the production, storage, and utilisation of electricity for lighting or power purposes has been invented by Mr. J. B. ROGERS, of Farrington-street. He states that he mounts upon, or in connection with an axle or the running wheels of a railway truck, or other vehicle, or by a small engine thereon, one or more dynamo-electric machines, and leads conducting wires therefrom for conveying the electric fluid to receivers or vessels of special construction, within which the fluid can be retained in given quantities and at such densities to be used therefrom for lighting the carriages as it is produced while the train is travelling, and also to continue the lighting for a given time while the train is standing still, such as when stopping at a station. The receiver, of which there can be more than one if desired, can be carried in the guard's break, or in some other portion of the train readily available to the conductor or guard, in order that he may connect and disconnect the necessary wires, or change the direction of the current, or to put one or other of the receivers in or out of action is desired. The receivers or storage vessels are composed of a rectangular shaped box open at top. Into this box he inserts another box, whose open end or side is lowermost, and resting or nearly so on the bottom of the outer box. The inner box is provided with racks or notched bars kept at the desired distance apart by stays or tie rods, and they have sheet lead (or other necessary absorber of electricity) arranged in undulating or zigzag order between the racks or notched bars, as to leave a clearance between every two folds or plies of lead. The outer box is kept charged with a salt or acid liquid in which the inner box, the racks, and the folds or plies of lead are submerged.

The racks and lead folds are in connection by conducting wire and adjustable appliances, and have also circuit wires leading to lamps arranged in the roofs or other portions of the carriages, the lamps being provided with carbons for the arc, or arranged for the incandescent light. Mr. Rogers claims that the invention is applicable to steam boats, and also to fixed structures for lighting highways, factories, public and private dwelling-houses, the boxes prepared as above described being capable of removal from place to place when so charged with the electric fluid. The boxes are provided with test appliances or apparatus, by which the strength and density of the fluid can be gauged, and also the quantity the boxes may contain at any time. The lead or other suitable metal in the interior of the inner box may be arranged as distinct plates, and in some cases plates of positive and negative metal may be substituted in the same or in different boxes for storage purposes. An absorbent body may if desired be arranged between the lead plies or between the plates.

WINDING GEAR FOR MINES.—To provide an efficient counterpoise to the winding ropes of engines used for raising men and minerals where the drum is parallel, so that the ascending and descending cages travel equal distances in the same period of time throughout the entire lift, and also to enable the lift to be made in less time, and lessen the risk of overwinding, Messrs. PICKUP and PILKINGTON, of Accrington, propose to employ a chain, and at the underside or bottom of each cage one of the ends of this chain is attached; the chain is of sufficient length to allow it to hang in a bend or loop in the sump a convenient depth below the loading stage at the bottom of the shaft. They prefer to make the chain of a greater weight per foot run than the winding rope, so that less power is required to raise the load at the commencement of the lift, and more power is required towards the end of the lift, thereby enabling the lift to be made in less time, and reducing the risk of an overwind, but the chain may be equal to (to constitute an exact counterpoise) or less in weight per foot run than the winding rope. The counterpoise



chain may be made of iron or steel, with links which may be single or double, flat or round, cable or plain, so as to form a suitable chain for the purpose. It is useful in attaching the chain to the under-side or bottom of the cages to see that the chain is applied without twists being left in it, or as few as possible. Although one chain is sufficient in ordinary cases, they do not limit themselves to one chain, as cases will arise where two or more counterpoise chains may be used. As there is no tendency to twist in the counterpoise chain or chains, no guides are needed at the bottom of the shaft.

#### SILVER MINING IN THE SOUTH OF SPAIN—THE LODES OF THE SIERRA ALMAGRERA.

The Sierra Almagrera consists of a range of clay-slate hills bordering on the Mediterranean, and extending some six miles eastward from Villarricos; it is about three miles in extreme breadth, and the summit averages 800 ft. above the sea. The lodes of this range were described in an interesting paper read before the Mining Institute of Cornwall by Mr. R. J. Frecheville, H.M. Inspector of Mines, and now printed in separate form, accompanied by a well-executed geological map (Truro: Lake and Lake). He states that the clay-slates composing the Sierra are in places so strongly metamorphosed as closely to approach schistose rocks in texture; their general course is north-east and south-west, with a south-east dip. About two miles from the foot of the Sierra on the land side occurs a series of trachytic domes, extending from Garrucha north-eastward, and culminating in their highest point at the mountain of Alifraga. Without doubt, he continues, to these trachytes must be ascribed the elevation of the Sierra Almagrera and the formation of the fissures, to the subsequent filling of which are due its numerous metalliferous veins, the richness of which is notorious; they vary from 2 ft. to 15 ft. in width, and present all the characteristics of their fissure veins. Some of them have yielded enormous riches from the surface down, but generally about 100 fms. has to be sunk before meeting with paying ground. Many of the lodes show a well-marked sequence of different constituents, their filling consisting of a zone of quartz and oxides of iron; a zone of spathic iron ore, calcite, and some carbonates and phosphates of lead, with a little silver; a zone of sulphurets, chiefly iron pyrites, with scattered crystals and strings of galena; and a zone of rich argentiferous galena, associated with spathic iron, barytes, and gypsum. The ore of the Sierra Almagrera is extremely rich, much of it containing 100 ozs. of silver per ton of mineral.

A distinguishing feature of some of the richest lodes is the occurrence of quantities of octahedral and tetrahedral crystals of galena most curiously aggregated together—some of these yielded at the rate of 82 per cent. of lead and 220 ozs. silver per ton of mineral. Sometimes the apparently pure spathose iron itself assays at the rate of 2 ozs. to 3 ozs. of silver per ton. The Romans mined extensively in the richest part of the Sierra Almagrera—the Barranco Frances at the western end of the range, but from their time until 1839 the mines remained untouched. The discoveries then made, however, caused such an excitement that in 1845 there were 826 mines and 38 smelting works in operation, and the year's production was 8350 tons of lead and 108,230 lbs. of silver (155-54 ozs. silver per ton of lead). Water increasing in depth, many had to suspend, and the production of silver-lead fell to a very low figure. Some 30 years ago five mines all working on the same lode on the Barranco Jaroso, in the middle of the range, combined to sink two common pumping shafts. These were 10 ft. by 8 ft., put down in the country 38 ft. apart, and at 100 fms. deep an adit 328 fms. was driven through the Sierra southward to the sea. The great lode of the Barranco Jaroso was cut 10 fms. below this adit, coursing north and south and underlying east, when to the surprise of everyone not only were the five mines unwatered, but also all others working in the Sierra, some of these being over 2 miles distant. From this it appears that the lodes of the Sierra Almagrera form such a perfect network that they all have communication with the great vein of the Barranco Jaroso. The mine water rapidly destroys the pumps, and powerful engines with 20-in. pitwork, 5 ft. stroke, and eight strokes per minute has to be employed. The pumping company—Cie Desague—levy from 5 to 20 per cent., according to locality of mine, of the gross produce raised below water level, and the lords exact a royalty of from 25 to 50 per cent. of the mineral. No statistics are obtainable, but Mr. Frecheville ascertained that the year previous to his visit many of the mines sold from 20,000l. to 50,000l. worth to the different smelting works.

#### ARTIFICIAL STONE.

An improved method of manufacturing artificial stone by the formation of silicate of lime, or calcic hydrosilicate *in situ* as the matrix or cementing medium, the said matrix being in chemical contact with the silicious aggregates employed to form the bulk of the stone, and produced by the action of heated water or heated solutions of lime permeating the mass after it has been moulded into the blocks required, has been patented by Mr. R. H. STONE, of Brighton, Victoria. He first takes as aggregates any natural silica or silicate, such as sand, disintegrated quartz, or other silicious rocks or earths, a portion of which should be either naturally in or reduced to an amorphous condition, whether or not in natural combination with any metallic base; he next takes lime, either quicklime (by preference ground) or an equivalent of slacked lime, by preference in the form of a pure hydrate or calcic hydroxide. These materials he mixes (the aggregates in various degrees of disintegration) so that their particles shall with those of the lime employed reduce the volume of voids in the finished stone to a minimum. If quicklime be used he employs a sufficient quantity of water with the aggregates to cause its perfect hydration before the next stage of the process, and use it in such proportions only as are necessary to thoroughly coat every particle of the aggregates.

The materials are then thoroughly triturated with such a further quantity of water only as required to form a mass of sufficient plasticity to render it capable of being compacted by ramming or pressing in moulds of any form required, it being advisable to avoid any excess of moisture beyond that necessary to permanently compact the materials; the concrete mass is then moulded preferentially by ramming in the required form, when the moulds can be at once removed, turning out the moulded piece to set on any suitable bed. To prevent carbonisation of the exterior of the stone while setting it, it is advisable to wash the surface over with a weak solution of silica in any convenient form (a dialysed solution being preferable), thereby forming immediately a surface of silicate of lime. This portion of the process is, however, not absolutely necessary, and is not claimed by him as a portion of his invention.

The process of setting will ordinarily occupy from three to ten days, and is to enable the blocks to be handled with safety, and although not necessarily longer than to set the surface, but by preference he allows sufficient time for it to take place throughout the mass. He next places the blocks in baths or tanks of any suitable form, and immerses them in water (by preference charged with lime or other solution of calcium), for the purpose of preventing the immediate dissolving or washing out of the lime near the surface of the stone; the tanks are then gradually heated by any suitable appliance, as by steam pipes, and maintained at an average temperature of 200° Fahrenheit, by preference under 212°, until the requisite degree of hardness is acquired throughout the mass, the time being from 48 hours to six days, the combined action of the lime, water, and moist heat forming a solvent acting on the surface of the aggregates, and with the amorphous portions of them forming, as is believed, the matrix of silicate of lime. This action is believed to take place by the alkaline base of calcium in solution by the continuous supply of water acting on the silica, and forming an insoluble silicate of lime or calcic hydrosilicate in an analogous manner to the formation of other alkaline, but soluble silicates under analogous conditions. It is essential to the appearance and perfection of surface that no degree of heat should be applied to subject the stone to the disintegrating action of steam by expansion.

It is found in practice that a very good stone is formed by the admixture, by measure, of sand free from all vegetable matter, 70 to 80 per cent.; amorphous silica or silicates as calcined clay, 10 per

cent.; quicklime reduced to hydrate, 10 per cent.; and water, 10 per cent. He does not confine himself to the precise details given, although in these particulars he has stated those which he believes to be the best, nor does he claim the manufacture of artificial stone by the admixture of limes and silicates, as he is aware that such admixtures are already in use. But what he does claim is the improved process of manufacturing artificial stone, the essence of which consists in the use and application of heated water with or without lime, in solution to such combinations (of lime and silicates) to form a matrix of silicate of lime or calcic hydrosilicate.

#### EARTH'S DIAMONDS; OR COAL, ITS FORMATION AND VALUE.

The condition and habits of the working collier and his family form at all times a fruitful topic for the author to work upon, whether he deals with the matter from a religious or from a commercial point of view; and in the volume just issued—*Earth's Diamonds; or Coal, its Formation and Value*. By HENRY H. BOURN. London: S. W. Partridge and Co., Paternoster-row—with a view to give the general public an idea of the dangers by which colliers are surrounded, and thus secure their consideration and sympathy for the "Central Association for dealing with Distress caused by Mining Accidents," Mr. Bourn has shown that he well knows how to utilise the material at command. His style is well calculated to suit the taste of those amongst whom the book is likely to circulate, yet he introduces so many technical and scientific data that the reader will acquire a large amount of useful information concerning colliers and their occupation. In his introductory chapter the table of sedimentary and fossiliferous strata of Great Britain, will be found very useful; and in the chapter on the formation and value of coal he describes the distinguishing characteristics of the carboniferous system, the vegetable origin of coal, the beautiful foliage found in some of the coal measures, the chemical processes at work in the formation of coal, the immense period required for such changes to be accomplished, and the peat bog and drift theories. In the third chapter some interesting statistics are given concerning the history of coal mining, and the two succeeding chapters furnish a good outline of coal miners and the nature of their work.

Coming to the more practical portion of his subject, Mr. Bourn gives in the sixth chapter full reference to the experiments of Messrs. Vital and Galloway and Prof. Abel for ascertaining the extent to which coal dust is an element of danger in mines. In subsequent chapters he points out the benefits of Government regulation and inspection, and the dangers connected with the use of gunpowder and other explosives in fiery mines. In the tenth chapter he ably urges the necessity for a permanent relief fund in all colliery districts, and directs especial attention to the Central Association for dealing with Distress caused by Mining Accidents, and he very wisely remarks that he fully sympathises with the Bishop of Manchester, who, when sending a subscription to the sufferers from the explosion at Wigan, said that the fact of men being connected with the relief fund, thus providing for their widows and children, was an additional reason why assistance should be given by the public generally. There can be no doubt that the views of the Bishop here expressed are those which should be generally entertained. Experience unfortunately proves that the benevolent are, in truth, inconsistent and uncharitable—they are ready to relieve the improvident, and absolutely discourage thrift by giving the industrious poor substantial evidence that, in case of misfortune, they will be the less cared for in proportion as they have during their humble prosperity debarred themselves of comforts and enjoyments in the but partially successful effort to provide for the future. The general support of the Central Association would certainly be preferable to indiscriminate subscriptions, and if the distribution of relief were effected through the local benefit societies, or rather upon the principles of reimbursing local societies upon their justifying their distributions, the cost usually inseparable from centralisation would be entirely avoided. The volume should be carefully read and considered by all who really desire to benefit the working collier.

#### NUNDYDROOG GOLD MINING COMPANY.

SIR,—In case a report of the meeting of this company held yesterday should appear in the Journal of to-morrow, would you kindly find space for these few lines? It may appear strange to those shareholders who were not present and may read the account, why, if I was dissatisfied, the voting at the termination was unanimous. The fact is, I withdrew all opposition, as I saw I should best consult my own interest by at once getting rid of my holding as best I could, and have done so.

Army and Navy Club, June 30.

PAPER WHEELS.—Paper wheels appear to be coming into more and more extended use on the American railways. From documents included in Mr. Drummond's official report it appears that in the first 10 months of last year one firm alone turned out 7729 of these wheels. Mr. Pullman, assistant general superintendent of the Central Railroad of New Jersey, says that they have been in use by his company for 10 years, and have been found to be the most economical as well as the only safe kind of wheels for passenger carriages. Whereas the best iron wheel (says Mr. Pullman) will not average over 50,000 miles, a number of our paper wheels have run over 400,000 miles, and some few over 500,000, and are still in service. It appears, however, that they are in the first instance considerably more costly than iron wheels.

MICHIPICOTEN NATIVE COPPER COMPANY.—Mr. Charles Paton returned to town last week from Michipicoten, looking well and prosperous. He brought some magnificent samples of the wealth of the island mines, and reports most successful operations at Michipicoten. Good paying copper found in every shaft, of which there are five down. The samples brought to this office are very rich. In many of the shafts large lumps of copper have been found in a state of purity. On the date of his departure there was found on a "hanging wall" a large mass of copper, which, judging by the pieces on the surface, would weigh from 600 to 700 pounds. The company's mills will soon be in working order, when they will make a large shipment of copper. A great deal of credit is due to Capt. Opie, manager of the mines, for the skill he displays in discovering and opening lodes, and the fact that the company have the Captain as a sufficient guarantee that the mine will pay well. Mr. Wm. Bell, consulting engineer, is very busy at present fitting up the engines and machinery. Dr. Peter is well, and likes the place. He is highly thought of by the inhabitants and is regarded as a skillful physician. On his way down, Mr. Paton called at the Ma Mainse Mine, and brings with him a very fine specimen of native copper. There is also found in the same mine a vein of grey ore, carrying a large quantity of silver in addition to the copper. It is thought that this will be the richest mine on Lake Superior. It is under the management of Mr. Ingall. The most pleasing part of the information received from Mr. Paton is that at Michipicoten men can find work at big pay, with good living under excellent management. Over 200 people are on the company's pay roll, and there are about 20 families on the island. Rev. Mr. Morgan, a young missionary from the Sault, holds services twice a day, on Sunday.—*Algoma Pioneer*, June 9.

Messrs. Morton, Rose, and Co. notify the payment on July 1 of the coupons of the Northern Railway of Canada First Mortgage Five per cent. Sterling Loan for \$50,000l.

The American Freehold Land Mortgage Company of London notify that the interest coupons, due July 1 on the debentures issued by this company, will be paid on and after that date at the London and County Bank, Lombard-street, E.C.

#### MAPS OF THE MINES, AND OF UTAH TERRITORY

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(Signed) A. LICCIONI, President.  
(Signed) G. BARNEWITZ, Treasurer.

VAN MINING COMPANY (LIMITED).  
Notice is hereby given, that the Directors have THIS DAY DECLARED a DIVIDEND of £1875, being TWO SHILLINGS AND SIXPENCE PER SHARE, payable, free of income tax, on and after the 12th proximo.

The Transfer Books will be closed from the 4th to the 12th July inclusive.  
By Order,  
W. J. LAVINGTON, Secretary.  
Dashwood House, New Broad-street, London,  
30th June, 1882.

UNITED MEXICAN MINING COMPANY (LIMITED).  
Notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of Proprietors will be HELD at the office of this company on FRIDAY, the 14th day of July next, at One o'clock precisely, for the purpose of considering and passing the following resolution:—  
"That a call of 2s. 6d. per share be and the same is hereby made on all the shareholders in the company, the same to be payable on the 9th day of August next."  
The Transfer Books will be closed on the afternoon of the 4th July next, and re-opened on the day succeeding the meeting.  
By order of the Board,  
W. M. BROWNE, Secretary.  
Offices: 3, Great Winchester-street-buildings, E.C., London, 27th June, 1882.

THE RIO GRANDE DO SUL (BRAZIL) GOLD MINING COMPANY (LIMITED).  
Notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of the above company will be HELD at 47, Finsbury-circus, London, E.C., on FRIDAY, the 14th day of July, 1882, at Three o'clock in the afternoon precisely, to confirm the following resolution passed unanimously at an Extraordinary General Meeting of this company, held at the above place on the 27th day of June, 1882, viz:—  
"That the whole of the shares in the above company be sub-divided from £5 to £1, that is to say, that each £5 share be at the option of the holder divided into five shares of £1 each."  
By order of the Board,  
JAMES ARTHUR MORGAN, Secretary and Solicitor.  
47, Finsbury-circus, London, E.C., June 27th, 1882.

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75 Camborne Vein. 25 Hington Down. 100 Tankerville.  
10 Carn Brea. 20 Kilbreth. 10 Tincroft.  
5 Cook's Kitchen. 50 Kit Hill. 20 Tin Hill.  
200 Coatacavil. 30 Langford. 10 West Basset.  
100 Coates. 100 Morla Du. 10 West Frances.  
10 Devon Consols. 100 Mounts Bay. 20 West Kitty.  
100 Devon Friendship. 200 Mysore Reef. 35 West Devon.  
100 D'eresby Mountain. 25 New Kitty. 10 West Feorren.  
10 Dolcoath. 50 North Busy. 20 West Folvreen.  
20 Doreway Hills. 100 Norway Copper. 5 West Seton.  
55 East Blue Hills. 50 Old Shepherds. 5 Wheal Agar.  
30 East Buller. 500 Old Owlacombe. 15 Wheal Basset.  
30 East Chiverton. 100 Parys Copper. 10 Wheal Grenville.  
10 East Pool. 100 Penhalls. 25 Wheal Jane.  
100 East Roman Gravel. 50 Phoenix United. 10 Wheal Kitty (St. Agnes).  
4 South Caradon. 23 South Condurrow. 50 Wheal Uny.  
50 Eberhardt. 100 South Crebor. 25 Wheal Crebor.  
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## ENGLISH INVESTMENTS IN AMERICAN MINES.

**J. TROWBRIDGE BAILEY,**

MINING ENGINEER AND EXPERT.

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## WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,

MINEOWNERS, STOCK AND SHARE DEALERS &c  
1, ST MICHAEL'S ALLEY CORNHILL, LONDON

But when is a mine beyond all hope? We agree with our correspondent that in some cases it is best to cut one's loss, and not throw good money after bad; but a mine is like Pandora's box, it contains all sorts of evils and disappointments, but always *hope* at the bottom. And this hope leads us on, not *always* to success; but in many cases when the prospects of mines have seemed hopeless, and shareholders have run from them like rats from a sinking ship, they have suddenly become, through one stroke of the pick, prosperous and great. Only a few months ago Killfirth was almost forsaken; those who had lost *hope* either relinquished or gave their shares away, and now the mine is paying good dividends and shares at 6l. each. East Caradon was another extraordinary instance of hope deferred for years, and then sudden and extraordinary success. We bought the shares at 1s. 6d. a few months before they rose to 50l. each. Again, look at Wheal Crebor—we stuck to the mine for 20 years, and carried it on by advances, when it seemed almost impossible to get in calls. Then to save it from being wound-up by the relinquishment of half the mine, we bought the half (3000 shares) and had some difficulty in placing them at 2s. each; yet in a few months a discovery sent them to 13l. each, or 6l. 10s. present share. We know that, on the other hand, there are "hopes" that are never realised, and that what we have referred to may be called exceptional cases, but we could mention many more like them. It is in limited companies that "hope" is too often *quenched*. The working capital almost invariably is too small, and gets spent before results are obtained, and as no one is bound to provide or liable for more many mines struggle on or get wound-up when they ought to be vigorously prosecuted. In a Cost-book mine when things are dull those who choose can relinquish, but there are generally one or two adventurous spirits who will continue to go on with "hope," and get rewarded in the end.

In our remarks of last week upon the wisdom, as we thought, of suspending unprofitable lead mines until lead reaches a remunerative price, we did not refer to any mine in particular, but recommended the plan to the consideration of the directors of all.

The Carnarvon Copper ores realised 392l. 4s. 10d. The best parcel (26 tons) was 1½ per cent. produce, and sold at 13s. 6d. per unit, or 9l. 17s. 5d. per ton. The second lot was 10½ per cent., and sold at 13s. per unit, or 6l. 13s. 3d. per ton. This again shows that the ores of the mine are very rich, and if the returns can be got up to 50 tons per month only, good profits would be made, as it is worked very inexpensively by water-power. The mine has returned from first to last about 100,000l. worth of ore.

A meeting of shareholders of East Blue Hills will be held very shortly. The committee wished to see all the tin stamps ready and at work if possible before calling it, so as to come before the shareholders in full play. Considering the few months the mine has been at work, its progress has been rather remarkable. Capt. C. Thomas, of Cook's Kitchen, has valued the reserves of tin ground opened out since we commenced at 6000l. With only a few heads of stamps ready, we have sold tin for 565l. are nearly working at a profit, and have a cash balance in hand of upwards of 1800l. Very few young mines can show such results, and at 10s. per share the value stands at 6000l. only.

A communication has been made at last between the No. 5 and north at D'Eresby Mountain with the "great chamber," out of which such quantities of lead were taken by the old men. The great lode here, which can be seen from "heading to hanging," is 20 yards wide, and the agents think all will do to stoop away. They also write, well pleased with the prospects of the mine generally.

We have received the following letter from the secretary of Santa Barbara, which we publish at his request. In Mr. Treloar's letter to the directors, under date May 17, he said—"I was astonished, not to say alarmed, the first time I went underground here (in November last), to see the condition of the timber in various parts of the mine, and what is taking place now is no more than what I then said might be the case." To this the directors appended a note thus—"The directors regret that Mr. Treloar has never conveyed to them the least information of his having found the timber in the condition he now describes it as being in." This to us, as shareholders, and to many of our friends, who are also shareholders, seemed so extraordinary that we called attention to it. And it now seems that Mr. Treloar's fears were communicated to Capt. Richards on the mine. All this is explained in the later advices of June 24, which are decidedly more favourable as to the future. In fact, Mr. Treloar now writes—"What at the first blush has the appearance of a crushing calamity will in the end prove nothing less than a blessing to the company."

DEAR SIRS,—My attention has been called to a paragraph in your circular contained in the Mining Journal of last Saturday, the 24th inst., respecting the crash that has unfortunately occurred at this company's Parli Mine, in which paragraph you enquire to whom did Mr. Treloar (not captain) impart his suspicion regarding the security of the older timbering in the mine. I beg to hand you herewith copy of the head mine captain's report on the accident to the mine, which will explain the state of affairs more fully, and I would say that it appears to me Mr. Treloar in his letter of May 17 means that his remarks about the danger of an accident, when he (Mr. Treloar) first went underground were communicated by him to Capt. Richards. The precautions that were then taken by Capt. Richards to secure the mine did not have the desired effect; but it now appears doubtful whether any means adopted by Capt. Richards could have prevented the catastrophe, which seems mainly to have been caused by an enormous landslide of the mountain above the open mine works. I will thank you to give this explanation publicly.

Liverpool, June 28.  
The sampling at D'Eresby Mountain is 20 tons this month; as in the early part of it, there was a short supply of water for the wheel and crushers and for dressing purposes. The agents hope to do better this month.

Parys Copper has sampled 400 tons of copper ore.

Langford next week. Other matters also have to stand over.

## ANTIMONY MINE.

THE OWNER of a VALUABLE ANTIMONY MINE in SCOTLAND is prepared to LET the same to a Syndicate of gentlemen or a private individual. The mine is well known, and was opened many years ago, when considerable sums were realised. The reason why the mine has not since been worked can be satisfactorily explained.

Principals or their solicitors may address to H. S. SHERRY, Esq., 4, Raymond Buildings, Gray's Inn, London.

## CORNWALL.

VALUABLE MINING SETT, MACHINERY, AND PLANT, IN THE IMPORTANT MINING DISTRICT OF ST. JUST.

MR. A. BERRYMAN has been instructed to OFFER FOR SALE, BY AUCTION, on the Mine, on Tuesday, the 11th of July next, at Eleven o'clock in the forenoon, as a going concern, the VALUABLE MINING SETT of—

## EAST BOSCASWELL MINE.

Situate in the parish of St. Just, in Penwith, together with the whole of the extensive and excellent PLANT and MACHINERY thereon, including—

ONE 30 inch cylinder PUMPING ENGINE and BOILER. Capstan and shears, main rods and pumps to the depth of about 150 fathoms; ONE 24 inch cylinder WINDING and STAMPS' ENGINE, BOILER, fly-wheel and cage, two stamps' axles, and 32 heads of stamps; poppet heads, sheaves, two skips and wagon, tram road to stamps and ship road, wire ropes and chain, rails and tram roads in the numerous levels, dressing floors, sheds, frames, and tools, Borlase's boulders, blacksmith's forge, tools, counting-house furniture, &c. The sett adjoins the celebrated Boscaswell Mine, from which immense profits have been realised, and comprises ground admitted to be about the richest for mineral in the district. The sett has about 10 years to run, and could doubtless be renewed. The dues reserved are 1-24th for tin and 1-20th for copper.

The machinery and plant are comparatively new, complete, and in good order, so that the mine may, with a moderate outlay, be set to work immediately. For further information and orders to view, apply to Mr. F. WARWICK, Public Accountant, 25, Bucklersbury, London, E.C.; or to the Auctioneer, 28, Clarence-street, Penance.—Dated June 10, 1882.

BY ORDER OF THE LIQUIDATORS OF THE LIVERPOOL AND BIRKENHEAD SLATE AND SLAB COMPANY (LIMITED).

MR. DAVID JONES WILL SELL, BY AUCTION, on Thursday, the 13th day of July next, at Two o'clock in the afternoon precisely, at the Pengwern Arms, Festiniog, the SLATE QUARRIES known as the

## BRAICH DU QUARRIES,

situate in the parishes of Maentwrog and Traffynydd, in the county of Merioneth, 3 miles from the village of Festiniog and 12 miles from Portmadoc, together with the valuable machinery and plant, consisting of a turbine 60-horse power, a large-sized water-wheel, two planing machines, several sawing machines, and five of Hunter's patent planing and cutting machines, blacksmiths' and carpenters' shops, weighing machine, machine houses, and tramways.

Together with SEVEN COTTAGES, MANAGER'S HOUSE, and STABLES, &c., on the land adjacent to the quarries. The tenure of the quarries is leasehold from the Crown, of which 13 years are unexpired, at a dead rent of £30, merging into a royalty of 1/4th of the produce. The land and quarries comprise about 27 acres of land or thereabouts. There are several lakes, reservoirs, and watercourses on the land, affording an ample supply of water for the motive purposes. These quarries are believed to have produced the largest slabs obtained in the North Wales district.

The Bala and Festiniog Railway, which is shortly to be opened, is within ½ mile from the quarries. The railway company have offered all facilities for a siding. The quarries have been opened up on an extensive scale, and slabs in any quantity can be had at once. The existence of slates has been proved with every possible encouragement that they may be produced abundantly. This, coupled with the near approach of the new line of railway, renders the property one of great prospective value.

For further particulars apply to Messrs. HARMOOD BANNER and SON, chartered accountants, 24, North John-street, Liverpool; Mr. THOMAS ROBERTS, C.E., Portmadoc; Mr. J. C. PARKINSON, solicitor, Imperial-chambers, Dale-street; or to T. and W. DODGE and PHIPPS, solicitors, 15, Lord-street, Liverpool.

## LANIVET, NEAR BODMIN, CORNWALL.

TO BE SOLD, BY AUCTION, at Bodmin, on Thursday, the 20th July, the FREEHOLD ESTATES of

## "TREGULLON," AND "TREBELL,"

Containing together about SEVENTY-THREE ACRES.

This land is situate at the junction of the kyllas and granite, and has been partially worked for tin and copper (about £50,000 worth of the latter having been raised), and presents a splendid opportunity for further development.

The adjacent estate of TRETOLL is now being worked for tin and iron, the latter ores producing over 63 per cent.

For further information, apply to the owner, Mr. J. G. JOHNS, Tretoll, Bodmin; or to Mr. JOHN R. COLLINS, Solicitor, Bodmin.

## SALE OF LEAD MINING PLANT.

TO BE SOLD, BY PRIVATE CONTRACT, a very large quantity of MINING PLANT belonging to the late Lessees of HURST MINES, in the parish of Marick, near Richmond and Reeth, in the North Riding of Yorkshire:—

ONE 15 horse power HYDRAULIC ENGINE, with 6 and 7 in. Pressure Pipes, 6 in. Pumps, &c.

A first-class OVERSHOT WATER WHEEL, 27 ft. diameter, 3½ ft. breast, with Crushing Mill attached.

ONE ditto, 22 ft. diameter, 3¼ ft. breast, with Crushing Mill attached.

ONE ditto, 20 ft. diameter, 3¼ ft. breast.

7000 Yards of RAILS, varying from 24 lbs. to 12 lbs. per yard.

A large quantity of WAGONS, BARROWS, and other MINING IMPLEMENTS necessary for working Lead Mines.

For further particulars, apply to Mr. RALPH METCALFE, Hurst, Reeth, Richmond, Yorkshire; or to Messrs. LEEMAN, WILKINSON, and Co., Solicitors, York.

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ARE PREPARED TO RECEIVE OFFERS for the PURCHASE of their ENTIRE MINING RIGHTS over an area of 6875 acres, in the county of Antrim, held under a lease expiring 1st May, 1903, together with their RAILWAY, about 6 miles in length, SHIPPING PIER, COTTAGES ACCOMMODATION, WORKS, LOCOMOTIVE ENGINES, WAGONS, and other plant.

The lease is subject to a moderate dead rent, merging in a royalty, and the mines are producing a high quality of hematite iron ore, which can be shipped in almost any quantity at a very low cost, as no shafts or pumping machinery are required, the outcrop of the bed of ore being traceable along a distance of about 11 miles.

Full information and orders to view the property can be obtained at the Company's Office, 36, Walbrook, London, where offers will be received up to 1st August next.

BLAST FURNACES FOR SALE, in EXCELLENT CONDITION, and can be quickly PUT TO USE. Abundant supplies of excellent Iron Ore and Fuel can be had on favourable terms.

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Particulars can be had on application to WILLIAM SCENECER, Mining Engineer, 39, New Walk, Leicester, by whom Tenders will be received up to the 21st July instant.

N.B.—The Vendor does not bind himself to accept the highest or any Tender.

FOR SALE, a SULPHUR MINE of the value of about £4,000,000 sterling, situate in Italy, in the Province of FORLI (Romagna.) For full particulars apply to Mr. NATALE DI GNO, Aducci, Forli.

Correspond by preference in the French language. The owner desires to negotiate directly with the intending purchaser.

The principal sulphur mines in the Romagna are only five in number, including the above, which is the best. A company with large capital at its disposal could negotiate, whilst purchasing the above, for the others also, and thus secure the monopoly of the sulphur of the Romagna, which is reputed to be the best in all Italy.

FOR SALE, CORNISH PUMPING ENGINE, cylinder 30 in. diameter, piston rod 3½ in. diameter, length of beam 32 ft., stroke in shaft 7 ft. 8 in., in cylinder 8 ft.

Also, TWO CORNISH BOILERS: one 36 ft. long, 7 ft. diameter, tube 4 ft. diameter; one 30 ft. long, 6 ft. diameter, tube 3½ ft. diameter.

Apply to Capt. THOMAS GARLAND, East Darren Mine, Bow-street, R.S.O., Cardiganshire; or to H. E. TAYLOR, Esq., 15, Newgate-street, Chester; or to JOHN TAYLOR and SONS, 6, Queen-street-place, London, E.C.

FOR SALE, TWO SECOND-HAND ENGINES, equal to new, 26 in. cylinders, 4 ft. stroke, mounted on strong cast-iron diagonal frames, and fitted with condensers and reversing gear; suitable for Winding, Air-compressing, or Driving Stamps, and will be SOLD CHEAP.

Also, a NEW 12 in. HORIZONTAL ENGINE, and ONE 5 in. and ONE 6 in. SECOND-HAND DONKEY ENGINES.

Every description of MINING PLANT always on sale.

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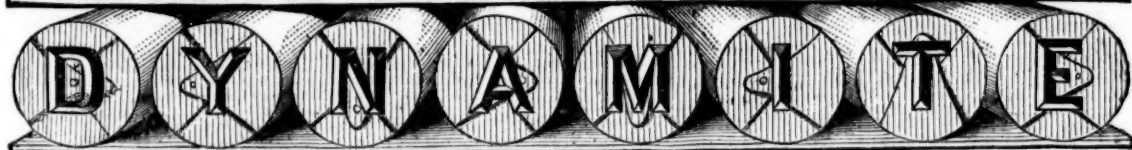
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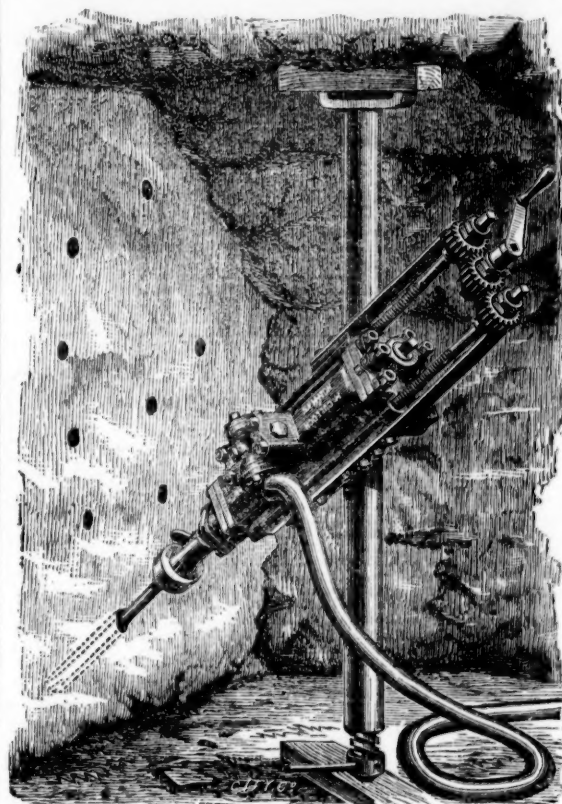
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PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES;  
 STEAM CAPSTANS; ORE CRUSHERS; BOILERS and PITWORK of  
 various sizes and descriptions; and all kinds of MATERIALS required for  
 MINING PURPOSES.

McCULLOCH AND HOLMAN'S  
 PATENT

### "CORNISH" ROCK DRILL.



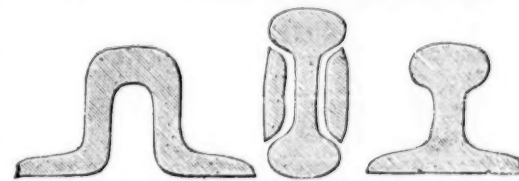
This Drill has been constructed after a long practical experience in the requirements necessary for Mines, and has more than realised the expectations of its inventors. The chief objects in view were **GREATER DURABILITY AND LESS LIABILITY TO DISARRANGEMENT**; but it has also proved itself more **EFFECTIVE AND ECONOMICAL**.

We are now prepared to enter into any reasonable arrangement so as to enable users to judge of its merits, as we are thoroughly convinced that we can offer the **BEST ROCK DRILL IN THE MARKET**.

Further particulars on application to the Makers--

**HOLMAN BROTHERS,**  
 CAMBORNE FOUNDRY AND ENGINE WORKS,  
 CAMBORNE, CORNWALL.

**JOHN BEATSON & SON,**  
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**IRON AND STEEL RAILS**, of all sections, from 10 to 86 lbs. per yard, new perfect, new slightly defective, or second-hand, with Fish-plates, Bolts and Nuts, Chairs, Spikes, and Points and Crossings to match, when required.

**STEEL AND IRON WIRE ROPES**, LOCOMOTIVE ENGINES, &c., &c.  
**BARNS, PLATES, SHEETS, &c.**  
**STEEL OF ALL KINDS. PIG IRON OF ALL KINDS**  
 Delivered at all Railway Stations and Ports in Great Britain.

## WILLIAM BENNETTS,

PATENT MINERS'

**SAFETY FUSE**  
**MANUFACTURER.**



This manufacture embraces all the latest improvements for use in Blasting in Mines, Quarries, or for Submarine Purposes; and is adapted for exploding Gunpowder, Dynamite, or any other Explosive; and is made suitable for exportation to any part of the world. Price Lists and Sample Cards on application.

All communications to be addressed--

**ROSKEAR FUSE WORKS,**  
 CAMBORNE CORNWALL.



## THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.					NON-DIVIDEND BRITISH MINES.					NON-DIVIDEND MINES—continued.				
Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.	Shares.	Paid.	Last wk.	Clos. pr.	Shares.	Paid.	Last wk.	Clos. pr.
3200 Blue Hills, t, c, St. Agnes	4 6	13	1 1/2	0 4	0 0	0 0	30000 Alston United, t, Cumberland	1 0	0	—	6400 North Green Hurl, t, (3400 1/2 pd.)	0 2	6	3 1/2
6000 Carn Brea, t, c, Illogan	7 11	12 1/2	1 1/2	32 11	0 0	0 0	12000 Asheton, t, Carnarvonshire	5 0	0	—	25000 North Grogwain, t, s, c, Cardigan	1 0	0	1 1/2
10240 Devon St. Consols, t, c, Tavistock	1 0	7 1/2	6 1/2	118 7	0 0	0 0	11582 Bedford Unit, t, c, (21 1/2 pd.)	0 12	0	1 1/2	12000 North Herodfoot, t, Liskeard	0 8	0	1 1/2
4296 Dolcoath, t, c, Camborne	10 14	70	65 70	129 13	0 0	0 0	30000 Bodidris, t, s, c, Denbighshire	1 0	0	—	50000 North Molton, t, c, m, t, Devon	1 0	0	—
6400 East Pool, t, c, Illogan	0 9	53	50 55	29 11	0 0	0 0	30000 Buono Consols, t, c, Flintshire	1 0	0	—	6000 North Penstruthal, t, c, Gwynnapan	2 3	0	1 1/2
12500 Frogoch, t, c, Cardigan (10000 sh. iss.)	2 0	0	3 1/2	3 4	0 0	0 0	20000 Bwch United, t, c, Cardigan	0 17	0	1 1/2	2936 North Trekerby, t, c, St. Agnes	8 17	0	1 1/2
12000 Great Holway, t, c, Flintshire	5 0	0	5 1/2	5 0	0 0	0 0	50000 Cambrian, t, c, s, c, Cardigan	2 0	0	—	8000 Northern, t, c, Durham	1 0	0	—
15000 Great Lacey, t, c, Isle of Man	4 0	0	18 1/2	28 4	0 0	0 0	50000 Carn Camborne, t, c, c, Camborne	1 0	0	1 1/2	40000 Okel Tor, t, c, c, Calstock	1 0	0	—
6400 Great Hurl, t, c, Durham	0 6	0	8 1/2	0 16	0 0	0 0	20000 Carnarvon, t, c, Carnarvonshire	1 0	0	—	80000 Old Shepherds, t, c, Cornwall	1 0	0	1 1/2
20000 Grogwain, t, c, Cardigan	2 2	0	2 1/2	0 19	0 0	0 0	37500 Carnarvonshire Cons., t, c, Llanrwst	2 0	0	1 1/2	12000 Pandora, t, c, Carnarvon	2 0	0	1 1/2
10240 Gunnislake (Clitters), t, c	2 0	0	2 1/2	83 5	0 0	0 0	30000 Carpellia Consols, t, c, Stephens	1 0	0	—	11812 Pant-y-Mwyn, t, c, Mold	2 0	0	1 1/2
2800 Isle of Man, t, c, Isle of Man	25 0	0	—	83 5	0 0	0 0	20000 Cathedral Cons., t, c, Gwynedd	1 0	0	—	45000 Parys Corporation, t, c, Anglesea	1 0	0	1 1/2
6000 Killfret, t, c, Chacewater	4 3	0	6 1/2	0 15	0 0	0 0	20000 Central Fawcett, t, c, Isle of Man	1 17	0	—	7500 Pateley Bridge, t, c, Yorkshire	1 0	0	1 1/2
20000 Leadhills, t, c, Lanarkshire	6 0	0	2 1/2	0 15	0 0	0 0	25000 Coed-y-Fedw & Pant-y-Buarth, t, c	1 0	0	1 1/2	6000 Pedn-an-dren, t, c, Redruth	2 13	0	3 1/2
400 Lisburne, t, c, Cardigan	15 0	0	—	613 0	0 0	0 0	2450 Cook's Kitchen, t, c, Illogan	30 14	0	37 1/2	12000 Pelyn Wood, t, c, Lanvay	0 5	0	1 1/2
10000 Mellanear, t, c, Hayle	2 0	0	5 1/2	69 3	0 0	0 0	10000 Cornwall Great Cons., t, c, (4500 issued)	1 0	0	—	600 Pendarves United, t, c, Camborne	8 0	0	—
9000 Minera Mining Co., t, c, Wrexham	7 0	0	8 1/2	69 3	0 0	0 0	4000 Crook Burn, t, c, Cumberland	0 17	0	1 1/2	12000 Pen-y-Oscedd, t, c, Flintshire	1 0	0	1 1/2
20000 Mining Co. of Ireland, t, c, t	5 0	0	5 1/2	0 10	0 0	0 0	14000 Crosswood Mining Lands, t, c	1 0	0	—	15000 Perran Consols, t, c, s	1 0	0	1 1/2
11820 North Hendre, t, c, Wales	2 10	0	—	3 14	0 0	0 0	45000 D'Essey Mountain, t, c, Llanrwst	0 10	0	1 1/2	12000 Pioneer, t, c, var, Wales	0 2	0	1 1/2
8148 Ditto	1 5	0	—	0 9	0 0	0 0	21000 Denbighshire Consolidated, t, c	1 0	0	1 1/2	3000 Polcrebo, t, c, Cornwall	1 0	0	—
2000 North Levant, t, c, St. Just	13 6	0	4 1/2	4 1/2	0 0	0 0	12000 Derwent, t, c, Durham	4 0	0	1 1/2	10000 Port Nigel, t, c, Carnarvonshire	2 0	0	—
4700 Penhalls, t, c, St. Agnes	4 0	0	—	0 10	0 0	0 0	6000 Devon Friendship, t, c, s, c, Tavistock	1 0	0	—	6000 Prince Royal, t, c, s, c, St. Agnes	1 0	0	—
6000 Pennant, t, c, North Wales	5 0	0	4 1/2	4 1/2	0 0	0 0	12000 Devon Great United, t, c, (21 shares)	1 5	0	—	12000 Prince of Wales, t, c, Calstock	0 15	0	1 1/2
12000 Phoenix United, t, c, Llaninhorne	1 0	0	2 1/2	2 1/2	0 0	0 0	50000 Drakewells, t, c, Calstock	0 15	0	—	15000 Roydon, t, c, St. Colum	1 0	0	1 1/2
18000 Fr. Patrick, t, c, (als. 12000 pt. 10 p.c.)	1 0	0	—	0 18	0 0	0 0	10000 Dubby Syke, t, c, Durham	1 0	0	—	35000 Russell United, t, c, Tavistock	0 15	0	1 1/2
10000 Red Rock, t, c, Cardigan	2 0	0	—	0 4	0 0	0 0	12000 East Blue Hills, t, c, St. Agnes	0 5	0	1 1/2	30000 Silver Hill, t, c, Callington	1 0	0	1 1/2
12000 Roman Gravel, t, c, Salop	7 10	0	9 1/2	9 1/2	0 0	0 0	6144 East Caradon, t, c, St. Just	4 8	0	1 1/2	50000 Sinclair, t, c, bl, Whitford	1 0	0	1 1/2
4000 Rhydalun, t, c, Wales	10 0	0	—	0 5	0 0	0 0	4000 East Chiverton, t, c, Penryn	10 12	0	1 1/2	20000 Southbridge, t, c, Horrabridge	1 0	0	1 1/2
512 South Caradon, t, c, St. Cleer	1 5	0	17 1/2	17 1/2	0 0	0 0	30000 E. Craven Moor, t, c, Pateley Bridge	1 0	0	1 1/2	6000 South Carbis, t, c, Redruth	0 10	0	2 1/2
6123 South Condurow, t, c, Camborne	6 5	0	8 1/2	8 1/2	0 0	0 0	15000 East Devon Cons., t, c, Buckfastleigh	2 0	0	3 1/2	35000 So. Devon Unit, t, c, Buckfastleigh	1 0	0	1 1/2
9000 South Darren, t, c, Cardigan	1 10	0	—	40 15	0 0	0 0	10000 East Herodfoot, t, c, Liskeard	1 0	0	1 1/2	5000 South Dolcoath, t, c, Illogan	0 14	0	1 1/2
4500 South Wheel Franch, t, c, Illogan	11 10	0	12 1/2	12 1/2	0 0	0 0	20000 East Long Rake, t, c, Wales	1 0	0	—	8000 South Penstruthal, t, c, Gwynnapan	2 2	0	1 1/2
6000 Thieroff, t, c, Pool, Illogan	4 5	0	6 1/2	6 1/2	0 0	0 0	12000 East Roman Gravel, t, c, Salop	0 15	0	1 1/2	40000 South Wheal Crebor, t, c, Tavistock	4 14	0	2 1/2
12000 West Holway, t, c, Flintshire	1 0	0	1 1/2	1 1/2	0 0	0 0	12000 East Llanidloes, t, c, Llanidloes	1 0	0	1 1/2	2043 South Wheel Croft, t, c, Illogan	2 9	0	1 1/2
512 West Tolgus, t, c, Redruth	58 0	0	17 1/2	17 1/2	0 0	0 0	2043 East Wheel Lovell, t, c, Helston	15 13	0	1 1/2	40000 Tamar, t, c, Bearston	1 0	0	1 1/2
2400 West Wheel Seton, t, c, Camborne	15 0	0	17 1/2	17 1/2	0 0	0 0	10000 East Wheel Rose, t, c, Newlyn East	1 0	0	1 1/2	110000 Tankerville Gt. Consols, t, c, Salop	0 15	0	1 1/2
6000 West Basset, t, c, Illogan	7 0	0	10 1/2	10 1/2	0 0	0 0	12000 Gawton, t, c, Tavistock (21 shares)	1 18	0	1 1/2	6400 Teesdale, t, c, Durham (pref.)	1 0	0	—
12000 Wheal Crebor, t, c, Tavistock	2 0	0	—	42 10	0 0	0 0	40000 Glasg. Car., t, c, (30000 sh. pd.)	3 1/2	0	1 1/2	20000 Tin Hill, t, c, St. Stephens	1 0	0	1 1/2
10240 Wheal Eliza Consols, t, c, St. Austell	18 0	0	—	0 13	0 0	0 0	14000 Glenroy, t, c, s, c, Isle of Man	4 0	0	1 1/2	10000 Tregebo, t, c, Cornwall	3 0	0	1 1/2
6000 Wheal Grenville, t, c, Camborne	15 0	0	11 1/2	11 1/2	0 0	0 0	10000 Goggin, t, c, Cardigan	1 0	0	1 1/2	10000 Trevaunance, t, c, St. Agnes	1 0	0	1 1/2
4295 Wheal Kiddy, t, c, St. Agnes	5 9	0	1 1/2	12 18	0 0	0 0	25000 Godever, t, c, St. Cleer	1 0	0	1 1/2	12000 Trevine Consols, t, c, Gwynnapan	0 2	0	2 1/2
3000 Wheal Pevor, t, c, Redruth	7 11	0	9 1/2	8 13	0 0	0 0	8500 Gorsead and Merlyn Cons., t, c, Flint	2 10	0	2 1/2	35000 Un. Van & Glyn, t, c, (17500 pref. sh.)	1 0	0	1 1/2

## NON-DIVIDEND FOREIGN MINES; FOREIGN AND MISCELLANEOUS STOCKS; TRAMWAYS; INSURANCE COMPANIES; GAS, IRON AND COAL, WAGON COMPANIES, &amp;c.

NON-DIVIDEND FOREIGN MINES					NON-DIVIDEND FOREIGN MINES—continued.					IRON AND COAL COMPANIES					GAS COMPANIES						
Shares.	Paid.	Clos. pr.			Shares.	Paid.	Clos. pr.			Shares.	Company.	Paid.	Clos. pr.			Issue.	Shares.	Pd.	Clos. pr.		
50000 Akankoo, g, Gold Cst. (100000 iss.)	0 7	6	1 1/2		25000 Ruby and Dunderberg, g, Nev. t	10 0	0	2 1/2		£100 Abbot, John, and Co. (L.)	£75 0	32 1/2	30	dis		50000 20. Bahia [L.]	all	17 17			
6400 Anglo-African, t, c, Kimberley	10 0	0	6 1/2		34022 San Pedro, t, c, Chili	1 17	0	2 1/2		5 Alltair Colliery Co. (L.)	5 0	0	—	25	27		10000 20. Bombay [L.]	all	5 1/2		
12000 Arendal, t, c, Norway	4 0	0	—		12000 Santa Cruz, t, c, (ex. 10s. ret. cap.)	1 0	0	1 1/2		100 Ashbury Co. (L.) (new)	90 0	0	—	25	27		29700 20. Bantam [L.]	all	150 150		
12000 Asia Minor, t, c, Lidjessy, Bivas	0 12	6	—		50000 Sentein, t, c, bl, Arlege, France	1 0	0	—		3 Bagnall, John, and Sons (L.)	3 0	0	—	—	—		14000 20. British	all	33 35		
30000 Bratsberg, t, c, Norway	2 0	0	1 1/2		25000 Silver Peak, t, c, Colorado	1 0	0	—		10 Benhar Coal Co. (L.)	10 0	0	—	4	4 1/2		50000 20. Commercial	all	187 187		
40000 Brazilian, t, c, Brazil	1 0	0	1 1/2		200000 South-East Wynnad, t, c, t, Turkey	1 0	0	—		20 Bolckow, Vaughan, and Co. (L.)	20 0	0	15 1/2	16	—		20000 20. Continental Union [L.]	all	25 25		
20000 British Australian, t, c, N. So. Wales	1 0	0	—		160000 Tamar, t, c, t, c, Gern. (100,000 pd.)	1 0	0	1 1/2		50 Brown, Bailey, and Dixon (L.)	40 0	0	22	20	dis		20000 20. Do. do. New, 1889, 1872	all	17 17		
18000 Broadway, t, c, California	5 0	0	3 1/2		100000 Tocopilla, t, c, Bolivia	0 10	0	—		100 Brown, John, and Co. (L.)	75 0	0	68 1/2	67 1/2	—		10000 20. Do. do. 7 per cent. Preference	all	25 25		
10000 Buena Ventura, t, c, Spain (fy. pd.)	2 0	0	—		43174 United Mexican, t, c, Mexico	29 10	0	3 1/2		100 Cannock and Co. (L.)	80 0	0	66 1/2	67	—		34850 20. European [L.]	all	187 187		
30000 California, t, c, Colorado	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		20 Cannock & Huntington Coal (L.)	10 0	0	10 1/2	10	dis		20000 20. Gaslight and Coke, t, c, Ord.	all	168 168		
15000 Canada, t, c, Venezuela	1 0	0	—		100000 Westworth, t, c, Wynnad	1 0	0	—		10 Central Swedish Iron & Stl. (L.)	10 0	0	1 1/2	1 1/2	—		5000 20. Hong Kong and China	all	14 14		
82500 Canadian, t, c, s, c, Canada	4 0	0	1 1/2		80000 Wynnad Perseverance, t, c	1 0	0	—		50 Charlton Iron Co. (L.)	50 0	0	3 1/2	3 1/2	—		230000 20. Imperial Continental	all	183 183		
23000 Central Jagersfontein Diamond, t, c	5 0	0	1 1/2		75000 Yorke Peninsula, t, c, So. Australia	1 0	0	—		50 Chatterley Iron Co. (L.)	50 0	0	6 1/2	7	—		386500 20. London	all	195 195		
10000 Cheraubadi (Wynnad) District, t, c	1 0	0	—		140000 Yuba River, t, c, Hyd. California	0 15	0	3 1/2		10 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—		12000 20. Malta & Mediterranean [L.]	all	2 2 1/2		
10000 Chile, t, c, Venezuela	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—		10000 20. Metrop. of Melbourne & p.c. Deb.	all	13 14		
15000 Chontales, t, c, Nicar. t (98000 iss.)	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—		25000 20. Ottoman [L.]	all	3 3		
15000 Colar, t, c, Mysore	0 15	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—		30000 20. Oriental [L.]	all	2 2 1/2		
75000 Colombian Hydraulic, t, c, Colombia	5 0	0	1 1/2		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—		27500 20. Rio de Janeiro [L.]	all	23 24		
65000 Colorado United, t, c, Colorado	5 0	0	1 1/2		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—		50000 20. South Metropolitan, A.	all	195 195		
10000 Coatacavil, t, c, Wynnad	0 10	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—		50000 20. Stk. Ditto, ditto, B.	all	170 174		
12500 Corp. So. Aust. Cop. (4813 sh. 3/4 pd)	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
20000 Devala Central, t, c, Wynnad	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
60000 Devala Mojar, t, c, Wynnad	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
75000 Devala Provident, t, c, Wynnad	0 10	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Dingley Dell, t, c, Devala, India	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Don Pedro North del Rey	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
25168 Eberhardt, t, Nevada	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
45000 Eureka, t, Nevada	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Eschequer, t, c, California	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
16000 Flagstaff District, t, s, g, Utah	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
65000 Gold Coast, t, c, Wassau	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Gold Hill, t, c, North Carolina	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
20000 Gold Mining Assn. of Canada	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
75000 Great Southern Mysore, t, c	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
12000 Hoover Hill, t, c, North Carolina	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Hornachon, t, c, Spain	10 0	0	10 1/2		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
12000 Hufsal, t, c, bl, Orebro, Sweden	5 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
50000 Indian Consolidated, t, c, g	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Ind. Glenrock, t, c, Wynnad	0 0	0	1 1/2		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Indian Mammoth, t, c, Chulaville	0 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
15000 Indian Phoenix, t, c, Wynnad	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
15000 Indian Trevelyan, t, c, Wynnad	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
15000 Isabelle, t, c, s, California	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 I. X. L., t, c, s, California	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
50000 Javali, t, c, Nicaragua	2 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Kapanga, t, c, New Zealand	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
65000 London and California, t, c	2 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
13500 Madras, t, c, Mysore	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Michipicoton, t, nat. c, Quebec	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
9000 Missouri, t, pref. (fully paid)	10 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
50000 Moelle, t, c, bl, Germany	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
35000 Mysore, t, c, India	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
12000 Mysore Reefs, t, c, Madras	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
40000 Nava de Jadraque, t, c, s, Spain	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
50000 N. Gold Run, t, c, Hyd. Cst. & 20000 pref	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
75000 Norway, t, c, s, Halsedun and Radon	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
20000 Nouv. Monde, t, c, Ven. (en com.)	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Nundydroog, t, c, Mysore	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
15000 Olathe, t, c, bl, Leadville, Colorado	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
125000 Ooregum, t, c, Mysore	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
15000 Organos, t, c, Colombia	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
15000 Pacherrey, t, c, South-East Wynnad	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
80000 Pestareuna United, t, c, Italy	3 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
10000 Pierre d'Or, t, c, Spain	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
50000 Pierrefitte (20000 pref.)	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L.)	10 0	0	1 1/2	1 1/2	—						
100000 Pierrefitte, t, c, California	1 0	0	—		50000 Vimeberg, t, c, Rheinbreith, Ger.	2 0	0	—		100 Chatterley Iron Co. (L											